This Week in

Metalworking Weekly

June 22, 1959 Vol. 144-No. 25

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Metalworking Pulse

INDUSTRIAL PRODUCTION INDEX	WEEK ENDED JUNE 13	PREVIOUS WEEK	MONTH AGO	YEAR AGO
(1947-49=100) Based on steel output, electric power output, freight carload-	174*	172	170	139
ings, auto assemblies	*Preliminary.			

Three of the four components in STEEL's index advanced in the latest period to establish a new record. Only steel production declined as producers prepared for a possible strike.

Details on Page 59

U. S. PASSENGER	WEEK ENDED	PREVIOUS	MONTH	YEAR
CAR PRODUCTION	JUNE 20	WEEK	AGO	AGO
Number of units assembled (Source: Ward's Automotive Reports.)	130,000* *Estimated.	127,543† †Preliminary.	133,568	84,396

Auto producers are edging back up to their 1959 high point after dropping off the pace two weeks in succession because of slowdowns for Memorial Day and inventory adjustments.

Details on Page 56

NATIONAL STEEL INGOT PRODUCTION	WEEK ENDED JUNE 21	PREVIOUS WEEK	MONTH AGO	YEAR AGO
Net tons (thousands) (AISI)	2,631*	2,604	2,644	1,751
Index (1947-49 = 100) (AISI)	163.8*	162.1	164.6	109.1
Percentage of capacity (STEEL)	92.5* *Estimated.	94.0	95.5	64.5

Operating at 92.5 per cent of capacity, mills turned out 11.6 million tons of ingots and steel for castings in May. This is a record monthly tonnage and brings the total for the first five months to about 53,370,000 tons.

Details on Page 128

STEEL SCRAP				
PRICE COMPOSITE	JUNE 17	WEEK AGO	MONTH AGO	YEAR AGO
Based on No. 1 heavy melting grade at Pittsburgh	\$36.50	\$35.50	\$33.33	\$35.00

STEEL's composite on No. 1 heavy melting steel rose \$1 a ton last week to \$36.50. This was the fourth consecutive weekly advance and lifted the market to the highest level since March. Mills have started to cut off shipments in anticipation of a strike.

Details on Page 140

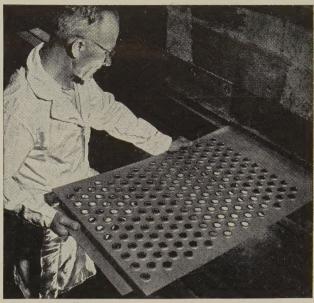
FINISHED STEEL				
PRICE INDEX	JUNE 16	WEEK	MONTH AGO	YEAR AGO
Based on Bureau of Labor Statistics data (1947-49=100)	186.7	186.7	186.7	181.5

The domestic market has been strengthened by a steady rise in quotations on imported material. The advance has amounted to as much as \$17 a ton since February. Foreign competition remains a serious problem.

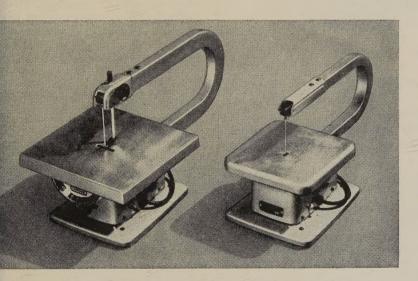
Details on Page 129



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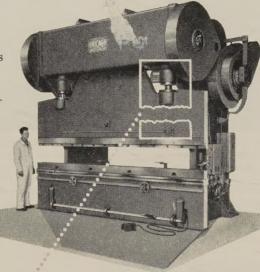
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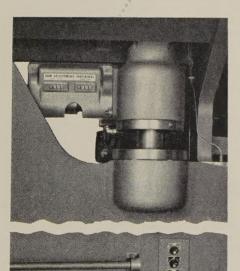
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CALENDAR

OF MEETINGS

June 22-23, Powder Metallurgy Parts Manufacturers Association: Membership and directors meeting, Skytop Lodge, Pocono Mountains, Pa. Information: Hanson & Shea Inc., 1 Gateway Center, Pittsburgh 22, Pa.

June 22-26, Air Pollution Control Association: Annual meeting, Hotel Statler-Hilton, Los Angeles, Calif. Association's address: 4400 Fifth Ave., Pittsburgh 13, Pa. Executive secretary: Harry M. Pier.

June 22-26, American Society for Testing Materials: Annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. Society's address: 1916 Race St., Philadelphia 3, Pa. Executive secretary: Robert J. Painter.

July 13-15, Truck-Trailer Manufacturers Association: Semiannual meeting, Homestead Hotel, Hot Springs, Va. Association's address: 710 Albee Bldg., Washington 5, D. C. Executive manager: John B. Hulse.

July 29-Aug. 1, National Tool & Die Manufacturers Association. Summer board meeting, Grand Hotel, Mackinac Island, Mich. Association's address: 907 Public Square Bldg., Cleveland, Ohio. Executive vice president: George S. Faton

Aug. 10-13, Society of Automotive Engineers: National west coast meeting, Hotel Georgia, Vancouver, B. C. Society's address: 485 Levington Ave., New York 17, N. Y. Secretary: John A. C. Warner.

Aug. 18-21, Western Electronic Show and Convention: Cow Palace, San Francisco. Information: WESCON, 1435 S. La Cienega Blvd., Los Angeles 35, Calif.

Aug. 19-20, National Screw Machine Products Association: Sales conference, Wade Park Manor Hotel, Cleveland. Association's address: 2860 E. 130th St., Cleveland 20, Ohio. Executive vice president: Orrin B. Werntz.

Aug. 31-Sept. 2, Metallurgical Society of AIME: Institute of Metals Division's conference on semiconductors, Statler-Hilton Hotel, Boston. Society's address: 29 W. 39th St., New York 18, N. Y. Secretary: R. W. Shearman.

Sept. 13-18, American Chemical Society: Fall meeting, Convention Hall, Atlantic City, N. J. Society's address: 1155 16th St. N. W., Washington 6, D. C. Executive secretary: Alden H. Emery. To meet it, Carpenter has doubled its ingot tonnage apacity within the past year through the acquisition of steelmaking facilities in ridgeport, Connecticut. New furnaces, mills and finishers—all completely equipped with precise Carpenter quality controls—began operation. And capacity—mass production of predictable performance specialty steels—is an established fact.

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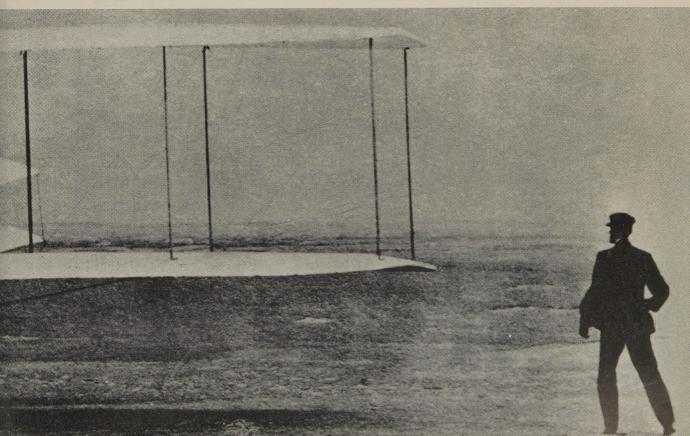
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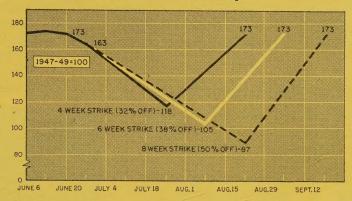


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Metalworking Outlook

June 22, 1959

Steel Strike: What Effect on Economy?



This table shows what would happen to STEEL's industrial production index during a steel strike lasting four, six, or eight weeks. But this is a narrow gage, so the impact seems worse than it would be. Gross national product would continue to expand during a strike, and the Federal Reserve Board's production index would suffer only a dent (Page 37). Reason: Most steel users have large enough inventories to work for four to six weeks after a strike begins.

Will Tight Money Slow the Boom?

Some businessmen are beginning to think it will. Auto dealers and home builders say tighter money is starting to cost them sales. And it's cutting into profits for some businessmen since tough price competition doesn't allow higher interest rates to be passed along in selling prices. Expect more banks to insist that business borrowers maintain a sizable "compensating balance" (leaving up to 20 per cent of the amount of a loan on deposit); it hikes the cost of money. You can expect to feel the impact of tight money more in the coming six months.

Republic Scores Breakthrough in Direct Reduction

Strip steel is being made from iron ore, without melting, by Republic Steel Corp., at its new research center in Independence, Ohio. The revolutionary process bypasses coke ovens, blast furnaces, open hearths, and blooming mills. The ore is purified, reduced to iron powder, and rolled into a semisolid strip. Heating in a reducing atmosphere and further rolling produce hot coils comparable to those made conventionally. To date, all work has been done in a laboratory, but a pilot plant will soon be started to solve quantity production problems (Page 44).



Westinghouse's Cresap Predicts Big Changes

America is within ten years of ultrasonic dishwashers, irradiated foods, picture frame television carrying intercontinental programs, fully automated factories,

continuous steel casting, and direct reduction of ore, believes Mark W. Cresap Jr., president, Westinghouse Electric Corp. We're in a period of "bold experimentation and great discovery" when "forces of change and growth will have a profound effect on management," he asserts. Three reasons: A soaring population (net annual addition: 3 million people), rising living standards (he predicts that, by 1975, American people will have 30 per cent more disposable income), and rapidly improving technology (the nation's R&D spending has climbed from \$500 million annually in 1940 to more than \$10 billion this year). We'll spend twice as much on R&D in the '60s, he declares.

Strike Threat Looms in Nonferrous

You may see widescale labor troubles in the nonferrous industries this year. At least 85 contracts in copper, lead, zinc, and brass expire between June 30 and Nov. 10. The two big unions in the field—the Mine, Mill & Smelter Workers and the Steelworkers—are pushing for higher wages, a shorter workweek, SUB, and escalation clauses. Both sides have indulged in tough talk and indications of any kind of compromise are few (Page 52). The size of the settlement in steel could affect the nonferrous bargaining, and your supplies may be pinched before it's over.



Now Jimmy Really Has Troubles

When a U. S. Court of Appeals upheld the right of court-appointed monitors to force a cleanup of the giant Teamsters union, it marked James Hoffa's most severe setback in his tenure as Teamster boss. Some observers are calling the ruling by Judge F. Dickinson Letts "the most significant breakthrough against union corruption since the formation of the McClellan committee." The ruling provides a broad charter for action by the monitors to compel a sweeping out of corrupt influences and could eventually lead to the dismissal of Hoffa himself. Godfrey P. Schmidt, a monitor and the legal counsel for 13 anti-Hoffa, rank-and-file Teamsters, seems about to press for a showdown on Mr. Hoffa's fitness to continue in office. It may come as soon as the monitors have rid the union of Mr. Hoffa's gamiest associates.

Unions Have Little Success in Whitecollar Drive



It's getting so that industrial unions need whitecollar workers worse than they need the unions. Despite continued attacks on the growing whitecollar ranks, union membership is declining (Page 40). A University of Michigan survey finds that most engineers and scientists have no desire to join unions. If yours are dissatisfied, take a tip from the study (Page 42).



Soviet Lauds U. S. Productivity

Productivity in U. S. steel plants is considerably higher than that in Soviet mills, the chairman of the Soviet steel delegation to the U. S., Aleksandr F. Borisov, reported in a Soviet newspaper. He attributed the higher productivity to the greater mechanization of service jobs (like material handling and scrap removal) in U. S. mills. He claimed, though, that the productivity of Soviet blast furnaces and open hearths was one-third to one-half greater than that of corresponding American units. Construction of steel plants and equipment is done faster in the U. S. than in Russia, he admitted.

But Productivity in Steel Lags That of Economy

George Washington University's Dr. John W. Kendrick reports that productivity in the iron and steel industry from 1947 to 1957 lagged that of the general economy. He said that situation, plus the fact that prices of labor, capital, and materials have risen more in iron and steel than in industry generally, is the cause of the rising price of steel mill products relative to wholesale prices generally. This is dampening sales gains in both domestic and foreign markets, he notes.

Latest in GM Antitrust Inquiry

The Justice Department is moving into the locomotive manufacturing segment of General Motors Corp.'s activities as it continues its antitrust inquiry by a federal grand jury in New York. Several railroads have been subpoenaed to produce a mass of records by the end of this month.

Mechanized Scrap Handling: Profitmaker



In your search for greater efficiency, don't overlook mechanized scrap handling. An underfloor conveyor (see picture) can boost usable floor space 15 per cent. In some plants, the value of reclaimed coolant alone justifies installation of a handling system. It also eliminates machine shutdowns for scrap removal and saves many dollars in labor costs (Page 98). It's faster too. At one plant, 5 tons of scrap an hour are collected from machines over a wide area.

Wheeling Steel in Oxygen Venture

Wheeling Steel Corp. and Hydrocarbon Research Inc. of New York have formed Mingo Oxygen Co. to build and operate a \$6 million oxygen generating plant at Mingo Junction, Ohio. Wheeling's bessemer converters there will be adapted to the oxygen vapor process.

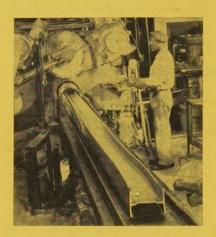
The Pentagon Makes a Missile Decision—Finally

The Defense Department master plan for air defense, conceived after much interservice bickering, will mean cutting \$1.5 billion from the Bomarc and Nike-Hercules antiaircraft missile programs, Sen. Richard B. Russell (D., Ga.) disclosed last week. The plan also calls for stepping up the research and development program of the Nike-Zeus antimissile weapon; about \$157 mil-

lion in research funds will be added. Fiscal 1960 spending for Hercules (produced by Western Electric Co. and Douglas Aircraft Co. Inc.) and Bomarc (Boeing Airplane Co.) programs will be cut about \$35 million each. Senator Russell said Defense Secretary Neil McElroy estimates savings of \$1.5 billion over the next five years will result from the cutbacks. He said the Nike-Zeus program "can run into billions of dollars."

Extrusions Find More Jobs

Watch for extrusions to become increasingly important to metalworking. Users appreciate such advantages as the intricate shapes you can make, the close tolerances, and the few finishing operations. Expect extrusions to be made from more metals and to appear in wider applications. Look for sales of aluminum extrusions to rise 25 per cent this year, magnesium 17 per cent (Page 121).



Furniture Manufacturers Are Optimistic

Check the booming furniture industry as a market for your products. It expects 1959 shipments to hit a record \$2.6 billion—12 per cent better than last year's and 1 per cent above the previous high set in 1956. John M. Snow, vice president, National Association of Furniture Manufacturers (now meeting in Chicago), predicts that makers will boost prices 3 to 5 per cent this summer. But Kroehler Mfg. Co. announced price reductions as the Chicago show opened last week.

Kefauver Charges Administered Prices; Companies Deny It

Sen. Estes Kefauver (D., Tenn.) says his antitrust and monopoly subcommittee will hold hearings sometime in August on charges of administered prices in the electrical equipment industry. He says major manufacturers submitted identical bids on equipment for a TVA project. General Electric Co., one of the bidding firms, says the conclusion is "completely erroneous."

Straws in the Wind

Expect the President to O.K. a bill passed by Congress raising the interest rate ceiling on privately financed VA loans to $5\frac{1}{4}$ per cent (from $4\frac{3}{4}$). It should stir a little interest in the now dormant mortgage field . . . An increase in aluminum prices is "inevitable" if upcoming labor negotiations in the aluminum industry result in a wage boost, D. A. Rhoades, vice president and general manager, Kaiser Aluminum & Chemical Corp., said last week. But don't expect it to amount to more than the 2 cents a ton that prices were cut in April, 1958 . . . Acme Steel Co. melted the first steel in its new \$33 million cupola oxygen converter on June 17. The Riverdale, Ill., facility has two, 25 ton, hot blast cupolas and two, 50 ton, basic oxygen converters. Annual capacity: 451,760 tons . . . McLouth Steel Corp. will spend \$11 million to double sinter capacity and boost oxygen steelmaking capacity at Trenton, Mich.





Labor Needs Controls Too!

This is the economic picture as we wind up the first six months of 1959:

Industrial production as measured by the Federal Reserve Board is at an all-time high. Based on 1947-49, it stands at 152 compared with the low of 126 in 1958 and the prerecession peak of 146.

Steel production of nearly 64 million tons in the first half eclipses the previous peak of 62 million tons in the 1956 period.

Passenger car production of 3.4 million units in the first half doesn't match the 4.9 million made in the same period of 1955, but it is 50 per cent higher than the 1958 pace.

Expenditures for plant and equipment, again on the way up, will come within \$5 billion of matching record outlays of \$37 billion in 1957.

The index of orders for industrial supplies and equipment stands at 235, 14 points above the previous high established in January, 1957.

But against this background of apparent prosperity, we have several highly disturbing factors:

- 1. Workers in the steel, copper, zinc, and lead industries in all likelihood will go on strike June 30. In the aluminum industry the strike date is July 31.
- 2. Industry has been forced to build up inventories artificially, so there is no way to measure how much of the recovery from the 1958 recession is genuine.
- 3. People generally are worried about what the wage settlements will be and what influence they will have on our economy.

Those and similar disturbances can be blamed on unions that have grown like Topsy in a few short years without legislative restraint.

They can get away with acts that would land a company or an individual in court or even jail.

It is too late to do much about the current mess. But something can be done about the future.

It means taking a firm stand in union negotiations and laying the facts on the line so they can be absorbed and understood by everyone, including our congressmen!

Iwin H. Such



In a Six Week Steel Strike . . .

Total Industrial
Production*
Would Dip Less
than 2%, but...



STEEL's Production Index* Would Plummet Between 32 and 38%



*Industrial Production Index components: Steel production, auto assemblies, electricity output, railroad freight carloadings, unadjusted.

IF STEELWORKERS go on strike for four weeks beginning July 1, they will lose about \$213 million in wages.

If the walkout lasts six weeks, the loss will climb to about \$321 million.

If they stay out eight weeks, they will lose \$430 million in base pay, or more than half as much as they have in all steel strikes since the end of World War II.

To many observers, loss of pay will be the most noticeable strike damage, unless it goes beyond eight weeks. As the top chart above shows, even a six week work stoppage would do little more than put a dent in industrial production.

First reason: Most manufacturers dependent on the steel industry have planned on at least a six week strike. They either have enough metal on hand or will take a vacation during a shutdown to stretch out their supplies.

Second reason, and even more important: The steel industry, large as it is, is still only a small part of the industrial community. In the Federal Reserve Board's production index, it accounts for only

5 per cent of the weightings. Its 649,000 employees in April accounted for only about 1 per cent of employment. (Union officials say about 510,000 USW workers could be involved in a total shutdown.) In 1958, the industry's wage earners collected \$2.4 billion, less than 1 per cent of national personal income (\$353.5 billion).

The impact of a strike deepens as your measuring gage narrows. Steel's industrial production index will dip significantly. That's because: 1. Steel production accounts for 35 per cent of the index. 2.

Railroad carloadings, which would be cut drastically, account for 22 per cent of the weightings. 3. The index is a raw figure, unadjusted for seasonal changes.

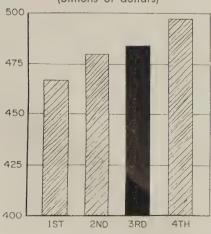
• Hardly a Ripple—But gross national product, perhaps the broadest business indicator in common use, will continue to expand during a six week strike, though maybe not as much as during a nonstrike situation. (See graph below.) Economists feel that it would take at least an eight week strike to hold GNP for the third quarter at the second quarter annual rate. Regardless of the length of the anticipated strike, they see GNP climbing to nearly the \$500 billion mark in the fourth quarter.

One steel company researchman says: "If the strike lasts eight weeks, we're almost sure to go over the half trillion dollar mark in the last quarter. Steel operations would be at an all-time high. If the strike is less than six weeks, though, it will be the first quarter of 1960 before we'll reach \$500 billion."

• But Others May Feel It—Only a few industries outside steel would feel much of a pinch from a six week strike. Probably the hardest hit would be the railroads. The Association of American Railroads estimates that freight carloadings would drop about 100,000 cars in

Six Week Strike Would Hardly Affect Third Quarter Gross National Product

(Billions of dollars)



Source: First quarter, Department of Commerce.
All others estimated by STEEL.

the first week and 150,000 in the second. The cumulative loss at the end of four weeks would mount to 550,000 cars, at the end of six weeks, 870,000 cars. After six weeks, the damage would be even greater because steel users would be forced to cut back shipments.

The AAR continues: "It might be expected that the revenue losses resulting from a steel strike would cause a reduction in orders for new freight cars... steel strikes do have a demonstrated effect on deliveries of new cars by carbuilders. Deliveries in August and September, 1952, and September, 1956, appear to have been reduced one-third or more below the number that might have been produced had there been no strikes."

Automakers think a prolonged strike could cause a falloff in sales. But it will not be disastrous, they feel. "At most," says one market researchman, "we could lose 100,000 to 150,000 new car sales in a six week strike. That would reflect a shaking of confidence in other buyers because steelworkers in themselves do not constitute a major portion of the market."

• The Drop Gets Bigger—However, if a strike goes over six weeks, the loss to the nation's economy will pile up quickly. STEEL's index will drop to half its present level. The FRB index will hit its lowest point in August. After July 1, several thousand more steelworkers will walk out as contracts or extensions expire. If there is no settlement by Sept. 1, almost all the estimated 510,000 USW members in the steel industry will be pounding the bricks. And a large portion of the metal fabricating plants will be shut down for lack of steel.

One steelman estimates that if the strike lasts up to three months, the Federal Reserve Board's total production index will drop 20 points below the present level.

• Before and After—One point not to be overlooked: The before and after effects of such an industry-wide walkout. The charts on Page 37 show the effects of an early shutdown of steelmaking furnaces. Steel's index could drop 10 points in the last week of June. This shows up in the FRB index as a leveling off in June instead of

further expansion. Once a strike is settled, it takes a full month before operations return to prestrike levels. At that time (assuming we have a strike) the stage will be set for one of the most vigorous upturns in the fourth quarter that the nation has ever seen.

Steel Talks: Little Headway Reported

MORE OF THE SAME occurred last week in the steel parleys—talk.

In the unlikely event that we get a peaceful settlement, it will probably come only if the union does an about-face and agrees to some of the eight proposals made by the steel companies to achieve greater efficiency. Steelworker President David McDonald had earlier rejected them all.

• 6-Cent Offer by Companies?—Mr. McDonald intimated that the companies hinted they would accept a 2 per cent boost in employment costs if the proposals were accepted. That would be a little more than 6 cents an hour, but the USW president claims the proposals would save the companies "\$2 an hour and wipe out gains made in the last 18 years."

The eight proposals:

I. Modify ambiguous and restrictive language to facilitate operating improvements.

2. Reinforce the contract prohibitions against wildcats, slowdowns,

and picketing.

Recognize the functions of management to develop incentives and establish sound standards.

- 4. Clarify the right of the companies to change work schedules.
 - 5. Tighten vacation provisions.
 6. Eliminate overlapping or du
- 6. Eliminate overlapping or duplicated benefits.
 - 7. Simplify seniority procedures.
- 8. Generally clarify contract language to develop better understanding and co-operation among the working force.

A strike at American Smelting & Refining Co.'s Tacoma, Wash., refinery was ended June 16. Word was received too late to change that listing in the table on Page 52.

Depreciation Reform in '60?

Two moves may spur action next year, but hopes fade for legislation now. The U.S. Chamber of Commerce canvasses opinion and Treasury surveys 2500 businessmen

TWO MOVES by industry and government may give a definite answer to the question: What kind of depreciation reform do businessmen want?

The answer will help bring us reform, perhaps in 1960. As Congress struggles to adjourn by midsummer, hope for action this year is practically nil. A major reason for lack of comprehensive reform is industry's lack of agreement on what should be done.

• STEEL Leads Way—Steel's survey of 918 executives (Mar. 2, p. 69) showed metalworking is sharply divided on four or more methods of reform. The Treasury Department has just started an even broader survey to find out what businessmen in all industries want. Some 2500 questionnaires have been mailed to learn what present depreciation practices are and to discover what would be more helpful for American business.

On June 11, the U. S. Chamber of Commerce held the first meeting of trade association, accounting, legal, and business executives to find out the consensus on depreciation reform. One or two more sessions are scheduled.

• Aiming for Nov. 2—The chamber meeting, chairmanned by Joel Barlow, Washington lawyer, was called to help the organization prepare testimony for the House Ways & Means Committee hearings scheduled to begin Nov. 2. The tax writing unit of Congress will survey our whole tax system, including depreciation. Findings gleaned from the Treasury questionnaire should also guide the committee.

America's system of tax depreciation is based on a schedule of useful lives that hasn't been modernized since 1942. It places a heavy burden on most equipment owners in writing off their capital assets for tax purposes. The average life al-

lowed on machinery is 20 years, even though much of it becomes economically, if not physically, obsolete in a far shorter period. What's more, our tax laws make no provision for inflation. Those of most other industrial nations do.

• The Four Depreciation Reforms—None of the major proposals had the majority's backing in Steel's survey. But the most popular approach was the bracket system (Steel, Mar. 16, p. 66). Others were fast writeoff at triple the standard rate (Mar. 23, p. 72), reinvestment depreciation (Mar. 30, p. 54), and a higher initial writeoff (Apr. 13, p. 58).

NAPA President Hits Commercial Bribery

"THE NATIONAL Association of Purchasing Agents is absolutely opposed to commercial bribery—no matter by what name or under what circumstance it may come."

So says Gordon Burt Affleck, retiring president of NAPA and purchasing agent for the Church of Jesus Christ of Latter-Day Saints. He's succeeded as president by Thomas O. English, general purchasing agent for Aluminum Co. of America (see picture).

• Answers Charges—In answering criticisms in the press and over television and radio about bribes and gifts, Mr. Affleck pointed to NAPA's fifth of ten standards for purchasing practice: "To subscribe to and work for honesty and truth in buying and selling and to denounce all forms and manifestations of commercial bribery."

Mr. Affleck urged that whenever a violation of that standard is re-

ported, these steps be taken by local purchasing organization officers:

- 1. Get the details accurately and completely.
- 2. See if the party concerned is a member of NAPA.
 - a. If so, ask him to desist and square up with NAPA policy.
 - b. Put him on probation so far as the association is concerned.
 - Give him full membership again if and when he gets in line.
 - d. Ask for his membership if he fails to comply.
- 3. Point out to the news media that the offender is not a NAPA member, if that's the case. Emphasize to the news media NAPA's policy on bribery.
- If Offered a Bribe—What should the buyer do if offered a commercial bribe? Send it on to the agent's principal, answers Mr. Affleck. "We're still called purchasing agents. An agent, acting for his principal, will make certain that all benefits, gratuities, gifts, and the like will go to the principal. Let it be known that if the offerer wants to give anything, it should come to your principal as a reduction in price or an increase in service."



THOMAS O. ENGLISH New President, NAPA

Labor Unions Struggle to Organize

Labor's argument: Big gains when it's the bargaining agent, as at Chrysler whose whitecollar people were organized in 1942

	1959	~ _ 1942
Junior clerk	\$358.92	\$90.00
General clerk (Grade 1)	419.62	145.00
Comptometer operator	403.98	117.50
Key punch operator	419.62	90.00
Telephone operator	378.92	106.50



Note: Fringes granted include cost of living increases, Supplementary Unemployment Benefits, pensions, longer vacations, and hospitalization.

Source: UAW.

THE UNIONS are not having much success in regrouping their forces for a new attack on white-collar recruiting problems. The latest effort came June 4 in Washington. Ten unions sent representatives to a meeting of the "Committee on Problems of Professional and Technical Workers" of the AFL-CIO's Industrial Union Department.

Purpose: To come up with a "program of action" to aid unions affiliated with the AFL-CIO in their recruiting. Behind the scenes, union leaders were trying to find the answer to a more basic problem: How to keep the large industrial unions from stealing white-collar members from groups like the Office Employees International Union (which recruit only among the whitecollar class).

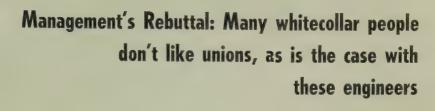
• Action Timetable—Here's what the unions present at the IUD meeting agreed to do: 1. Sponsor an "educational institute" to train recruiters in whitecollar job problems. 2. Analyze contracts covering whitecollar workers, to spot any uniformity. 3. Set up a legislative program (state and national level) that all unions can back. 4. Write material on "how professional and technical employees have gained from collective bargaining without detriment to their professional or job status." 5. Distribute the results of the program among potential union members and interested affiliated unions for their use.

The program appears to be more formidable than it actually is. STEEL learned at AFL-CIO headquarters in Washington that the confederation has never had any central disbursing office for material on whitecollar worker problems. The June 4 meeting will not change the situation. Says Al Whitehouse, IUD director: "The department's activities will be limited to aiding its affiliated unions in meeting the challenge arising from the growth of the nation's professional and technical jobholders." In other words, each union will continue to go its separate whitecollar way. Insiders report heated discussions between whitecollar and industrial unions at the meeting, but no wise man could come up with a solution for dividing the pie. As an industrial union source concluded: "We have no battle plan."

 Industrial Union Needs — It might be said the industrial unions need the whitecollar worker worse than he needs a union. In the search to recoup losses in membership (Steel, Apr. 13, p. 51), the United Steelworkers, United Auto Workers, even the United Mine Workers, cast envious eyes at the fast growing whitecollar class. The U. S. Labor Department says the nation will need 1.7 million more professional and technical people by 1965 than in 1955 (a 37 per cent increase) and 2.3 million more clerks and salesmen (a 27 per cent increase). The AFL-CIO is well aware that "professional, technical, and kindred employment" has grown 39 per cent in the last seven years.

The Bureau of Labor Statistics figures there is a potential of 15 mil-

Metalworking's Whitecollar Workers





50	%	•	•	•	•		*	strongly opposed
23	%	•	•	•		•		mildly opposed
11	%	•			•	٠		mixed emotions
2.5	%		•		٠		•	mildly in favor
5	%	٠		•	•		ř	strongly favor
8	%							Prefer society action

Based on 277 interviews with nonorganized professionals in eight manufacturing plants and two public utility companies.

lion union members in the whitecollar class, including about 4.5 million professional, semiprofessional, and technical workers, 7 million clerks, and 3.5 million salesworkers. About one-sixth, or 2.5 million, of these salaried employees belong to unions.

A Labor Department source believes that figure has been static for the last two years, perhaps has even declined a little. (No official BLS estimate for 1959 is available.) That fact, coupled with the trend to automation, worries the unions. Like a manufacturer seeking new markets for old products, they have attempted to extend themselves geographically (the South) but have met with little solid success. One possible approach: Dress up the product in the form indicated by the IUD conference to find new customers in markets already well tapped.

• Why? — But success won't be easy, says the Labor Department source. He has noted no significant National Labor Relations

Board election victories in the last few years and counts the June 4 meeting as little more than face saving. "The unions, especially the industrial ones, can talk themselves blue in the face, but they are going to get nowhere important in their efforts to gain more whitecollar membership," he says. Why not? "In the first place, employers are learning more every day about dealing with whitecollar folks. For example, a smart boss can, with a little tact, cause the office people to identify themselves with management. Secondly, industrial unions generally don't understand how to appeal for whitecollar membership. Bluecollar strategy rarely works on whitecollar workers."

Strictly whitecollar unions also have their problems. Small offices are particularly difficult to organize because of the proximity to the boss. Women are generally harder to organize than men because of their turnover rate. Finally, many whitecollar workers are getting bluecollar fringe benefits without joining unions because manage-

ment feels responsible for seeing that union members do not get more benefits than nonunion people. The Labor Department source sums up: "The unions have made bold statements for a decade. In only a few cases, have their challenges to management in the whitecollar field been legitimate. Usually, they are just talking for themselves, not for the whitecollar employee."

• The Organized—This estimate is borne out by these figures for metalworking employees: Only about 60,000 engineers, scientists, architects, and draftsmen are unionized, says BLS.

Only 14 per cent of the officeworkers are in unions, while membership among manufacturing clerical employees runs about 15 per cent. USW claims 20,000 of its 1.25 million members are whitecollar people, although the figure does not account for many agreements with fabricators where there is no breakdown between clerical and production workers. A source at

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June 22, 1959

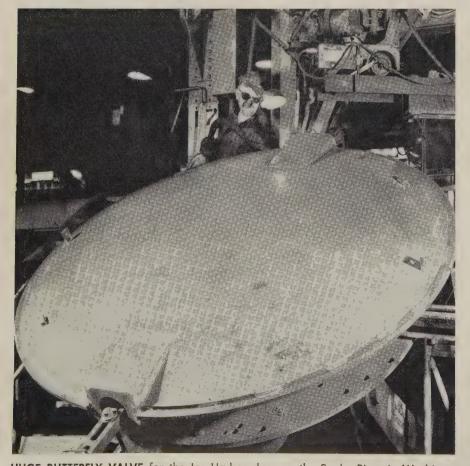
union headquarters described its efforts with whitecollar folks as representing only a "modicum of success."

The UAW claims 65,000 white-collars among its 1.14 million members. About 50 per cent are at Chrysler, 30 per cent at Curtiss-Wright, and 20 per cent at International Harvester. The union employs seven full-time organizers for its whitecollar program. A union official reports he is "encouraged" at the progress being made, although it is "slow."

• Basic Argument—How do the unions get what whitecollar members they have? This sales pitch is common: "You work under office rules which can be changed overnight at a whim. You need the security of union membership."

The chance of losing a job via the installation of automated equipment is becoming increasingly important to officeworkers. Here's a typical clause from a whitecollar agreement signed by a large metal-working company: "When the installation of mechanical or electronic equipment will have an effect on the job status of employees, management shall review the matter with the local union grievance committee in advance of such installation. In the event such mechanical or electronic equipment is installed, management shall provide reasonable training arrangements for the employees affected (so they) may have an opportunity to become qualified for available jobs."

• Summary—You have one great advantage in jousting with unions for the loyalty of whitecollar people —few want to be organized. But that advantage can vanish if you deal carelessly with problems like office automation or if you don't understand the whitecollar attitude toward unionization. For a clue about how one group of whitecollar people, engineers, feels about the situation, see the following story.



HUGE BUTTERFLY VALVE for the Ice Harbor dam on the Snake River in Washington is automatically welded to insure perfect performance and long life. Stainless steel seat rests on rubber seals in valve port. Gantry welder and positioner combine to produce a more uniform, sounder weld

Most Engineers Oppose Unions

MOST ENGINEERS and scientists prefer to stand on their own feet when it comes to getting a raise or a better job. If you sense strong dissatisfaction among your professionals, you'd better overhaul your labor relationships and salary practices. A University of Michigan survey indicates the most critical areas that could cause engineers to seek collective bargaining.

Summarizing his study, Dr. John W. Reigel, director of Michigan University's industrial relations bureau, asserts: "Engineers and scientists essentially are innovators and discoverers in the material realm. The true professional feels an obligation to exercise a high order of self-discipline and personal responsibility in the practice of his profession. His fellows expect him to protect its good name and standing at all times."

• Why Against Unions?—Engineers are generally against unions because they can lead to: Lack of independence, reduction of merit raises, stagnated professional development, and establishment of restrictive working regulations. They're also concerned because they feel unions would create barriers between them and management, would degrade their professional status, and might involve association with corrupt labor bosses.

Listen to what they say: "Anyone who professes to be an engineer should be strong enough to take care of himself. He doesn't need a union to do this for him." . . . "Creative effort cannot be organized or evaluated in terms of union rates. I can't see what standards could be used for bargaining purposes with the many different types of specialties involved in engineering work."

• Societies Can't Help—In keeping with their status, some engineers would like to see more efforts by the professional societies to establish job standards and salary rates. Such boosters include some of the top professionals, not just the laggards

less competent men. Says one: n Ontario, the Association of Prossional Engineers recommends saly levels and describes various tegories of engineering by years experience and types of work. his is a good system."

Dr. Reigel doubts that society accon will work because societies are emposed of different groups of prossionals such as students, mangers, public employees, as well as tose who are working in industry. collective bargaining attempt robably would cause factional disord and seriously weaken these rganizations, he declares.

Check Yourself—To avoid distisfaction that opens the door to rganized labor you'll want to check our practices against three pitfalls ngineers feel rob them of status.

- I. Salaries Out of Scale—Engineers have a habit of comparing heir incomes with those of doctors, awyers, and skilled workers instead against other engineers in the ame sort of business. Suggestion: Make sure your salaries are in line, hen explain the scale to your processionals. This may help oversome another chronic complaint—the shrinking margin between older engineers' salaries and higher starting pay for newcomers.
- 2. Impersonal Management—"A ot of the troubles with engineers omes from impersonal management and its failure to recognize them as professionals. At this company," harges one interviewee, "engineers have to line up at the pay window dong with hourly employees. If engineers become unionized, it will be strictly a protest move." Suggestion: Free engineers from routine tasks; give them more responsibility; explain why some company policies are necessary (see Steel, apr. 21, 1958, p. 67).
- 3. More Management Identity—Inderlying the survey results is the feeling that engineers often resent the fact they aren't given more proportunities to offer advice or be a formed of management problems and plans. Suggests one professional: "Contact between a professional group and management on a iscussion plane would be good for better mutual understanding, but here should be no coercion of management by professional groups."

National Wins Dunes Battle

Portage Township, Ind., votes to incorporate as a town, giving steel firm the go-ahead to build a \$100 million mill

PLANS TO BUILD a \$100 million finishing mill in the Indiana dunes area will be carried out by Midwest Steel Corp., a subsidiary of National Steel Corp., Pittsburgh.

The action follows approval of a referendum by Porter County commissioners—on June 13 residents of Portage Township voted to incorporate as a town by a 10 to 1 margin. The commissioners also approved a zoning ordinance permitting heavy industry in unincorporated sections of the county.

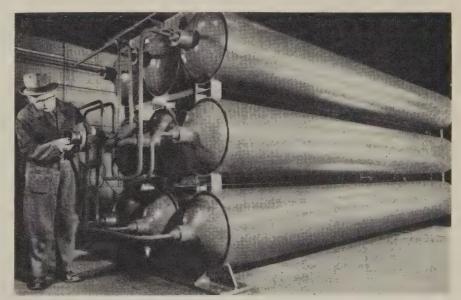
• Ends Fight—The move, climaxing several months of hassling, was interpreted by Albert J. Berdis, Midwest president, as "giving the needed clearance to build a Midwest Steel Corp. plant." "We expect to proceed in that direction at the earliest possible date," added Mr. Berdis. Some sources report ground breaking may start as early as July 1.

Industry minded Porter County thus overrode the objections of tiny Ogden Dunes, Ind., and Sen. Paul Douglas (D., Ill.). They wanted the area preserved as a park and had attempted several measures to prevent the steel industry from moving into the region. The senator still has a bill before the Senate, (S. 1001) which would make the area a national park. Its chances for passage are apparently nil. Many Indiana state officials, led by Gov. Harold Handley, a Republican, favor industrialization of the area.

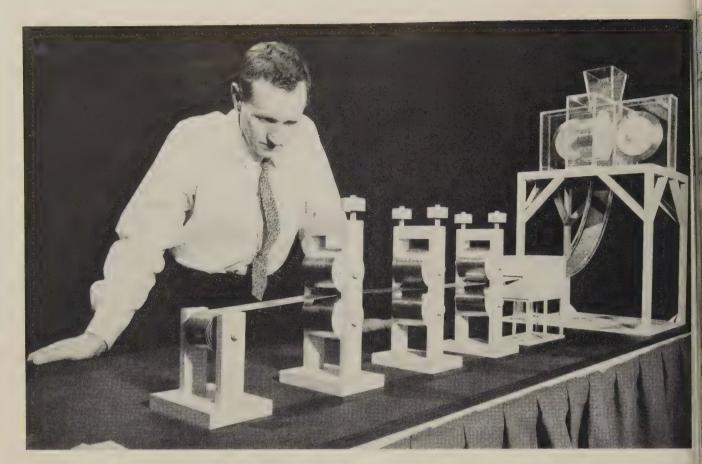
The door to expansion is now opened to Bethlehem Steel Corp. and Inland Steel Co. which also own land in the dunes country. Neither firm has disclosed plans for developing their properties.

• The Plant—The Midwest facility will include a tin plate line, galvanizing line, hot and cold rolled lines, and supplementary equipment for the production of electrolytic tin plate, galvanized coils, and hot and cold rolled sheets and strip. The nonintegrated operation will have an annual finishing capacity of 840,000 tons. Prime customers will be food processing industries in the Chicago area.

Semifinished steel is to be shipped to the plant by rail or water from National's Detroit subsidiary, Great Lakes Steel Corp.



HIGH PRESSURE TANKS containing helium, nitrogen, and oxygen will force liquid fuel into Atlas missiles and purge fuel systems after launchings. Vessel walls are made from solid alloy steel billets at Christy Parks Works, National Tube Div., McKeesport, Pa., United States Steel Corp. They're 5 to 26 ft long, designed for pressures up to 8800 psi



Model shows how strip steel is made from iron powder without melting. Powder is funneled into four rolls (upper right), and compressed into a semisolid strip. A furnace heats and deoxidizes the material; hot-strip rolling stands reduce it to desired thickness and give it the right density

Republic Scores in Direct Reduction

Process developed by Republic Steel Corp. would reduce capital equipment and operating costs by eliminating coke ovens, blast furnaces, open hearths, and blooming mills. Highly purified ore is reduced to metallic iron and rolled into a semisolid strip. The material is then heated to 2200° F in a reducing atmosphere and passed through a series of hot-strip stands to give it the right gage and density. The company plans to do further research on the process in a pilot plant, where full-scale production problems can be solved

A MAJOR breakthrough in direct reduction is announced by Republic Steel Corp., Cleveland. The company is producing strip steel from iron ore, without melting, at its new research center in Independence, Ohio.

The process bypasses coke ovens, blast furnaces, open hearths, and blooming mills. It could reduce capital equipment and production costs while producing steel as good as that made by conventional methods, says Peter Robertson, vice

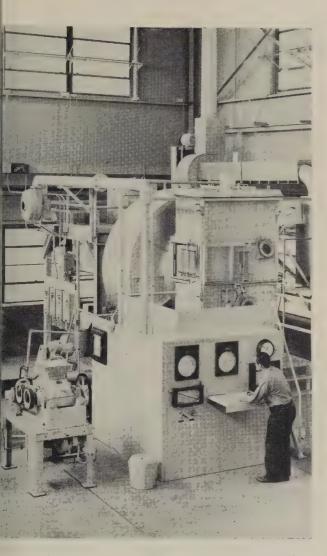
president, research and planning.

• Ore is purified and reduced to iron powder. Rolling, heating, and further reduction complete the process.

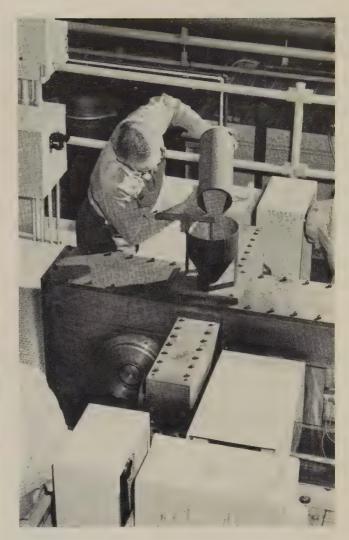
Iron ore is highly purified and reduced to metallic iron powder. Then it's funneled between four rolls, where it's compressed into a semisolid strip.

The material passes through a furnace (where it's heated to 2200° F in a reducing atmosphere) and a series of hot-strip stands. Hot rolling reduces the strip to desired thickness and gives it the right density.

Hot coils are of the same quality as conventionally made ones. They're pickled, cold rolled, and annealed, then recoiled or cut into



Ores are heated with coke fines in this equipment and reuced to metallic iron. The product is later made into iron owder for pressed metal products



In a laboratory run, highly refined metallic iron powder is poured into a funnel and fed through rolls which compress it into a semisolid strip

neets. The metal has good drawing characteristics, with satisfactory esistance to tearing or cracking.

All work has been in the laboratory. Next: Pilot plant production. The company has produced more and 1800 lb of steel in the laboratory. A spokesman expressed condence in commercial application of the method. But further research will be necessary. A connuous pilot line will handle larger unantities of raw materials and permit solution of many full-scale production problems.

Powder metallurgy and direct eduction aren't new at Republic. Steelmen have been intrigued ith direct reduction for years; a number of processes show promise.

A direct reduction plant was built by Republic Steel during World War II at Warren, Ohio. It made electric furnace charge material from iron ore, using coke oven gas as a reducing agent.

Later, the company experimented with chemical purification and direct reduction to beneficiate low grade ores at a pilot plant in Cleveland. Findings encouraged the company to build a commercial iron powder plant at Toledo, Ohio, in 1955. The product is used to make mechanical parts by pressing and sintering.

In 1957, Republic Steel Corp. and National Lead Co. formed R-N Corp. Its product: Melting stock, made by direct reduction of iron ore, to replace scrap or hot metal in steelmaking.

 Work at Republic's new research center will include short range and pure science projects.

Metallurgy, processing, new products, and ceramics will be investigated at the new \$5 million facility, says T. F. Patton, president. Budgets and schedules are planned for immediate and long range returns.

About 30 per cent of the budget will be applied to projects promising results in one to three years. A similar amount will finance projects on a five year schedule. Another 30 per cent will cover long range projects. (Some may take more than ten years to pay off.)

About 10 per cent of the budget will finance pure science projects which have no immediate application but promise future benefits.



Nearing end of tour, Jim Sands answers . . .

How Good Is the WOC Plan?

DO WOC's live a life of leisure with lots of golf dates? Are late rising and the Washington social whirl part of the routine?

"No," flatly states Jim Sands of Eclipse Fuel Engineering Co., Rockford, Ill. Jim is a WOC (without compensation), one of the metalworking executives on six month leave from their jobs to advise the Business & Defense Services Administration on mobilization programs. He's heading home this month after a seven month tour of duty under Andy Olsen, chief of the Metalworking Division, BDSA.

Mr. Sands, who went to Washington to start the first mobilization study of industrial heating equipment by the agency, tells STEEL the WOC program is in good shape. "I'm enthusiastic about it," he continues. "And although the duty is no vacation, it's a real education."

From the solid base of an industrial background, the WOC can give government people counsel about his own industry, plus a better understanding of over-all management techniques. In return, he obtains a rare perspective of government-industry relations.

Two-Way Street

"A good WOC educates us in government," say Mr. Olsen. Counters Mr. Sands: "Businessmen must take these jobs and be sincere about their work to provide all government agencies with the continuous kind of contact with business that BDSA must make. Trade associations can't handle government-industry relations alone." The program doesn't end when the WOC goes home. Seven are retained on an intermittant basis by the Metalworking Division for advice on mobilization problems.

Improper Influence?

STEEL asked Mr. Sands if a WOC is able to influence government contracts in any manner. Answer: "A WOC divorces himself from his job for the tour. He has no personal ax to grind and sometimes finds him-self recommending competitive equipment."

Both men appeared pleased with the present setup in which WOCs act strictly as advisers. When the program first began, they were division chiefs. Consequently, they didn't learn much or offer the government much help. They were too busy learning the ropes.

Advice to Future WOCs

Jim Sands has recommended his industry keep sending a man to Washington after he is gone.

Be prepared to put in a full day's work, he warns successors. Advising the government on industry problems, plus the time spent in learning the big picture of our defense and mobilization activities, may take more than six months. Many take a second tour.

How About Civil Servants?

"I came to Washington wet behind the ears," he comments. "I learned it's not all politics here. Back home, many of us complain about huge government spending programs. There's a need for some of it. At the same time, I'm not saying there isn't waste.

"I'm sure some government people could earn three times what they make now if they went into private industry. But many are dedicated to their work in the same manner as people in the teaching profession."

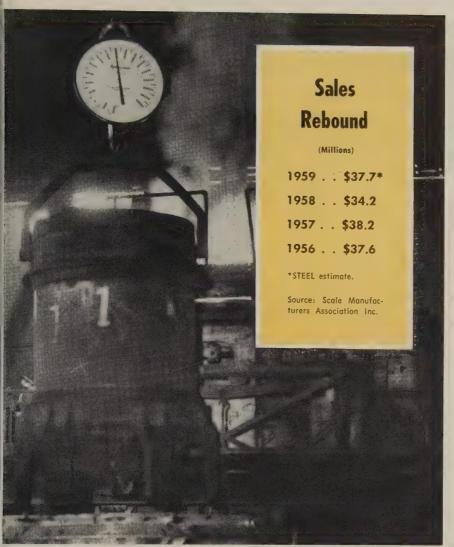
Is Washington a rat race? He didn't find it that way. "Of course, we don't come into contact with Capitol Hill. We are not policymakers, just advisers."

How about bureaucracy? "No so-called government bureaucrat has slowed down my work. Co-operation from government agencies has been good."

Jim Sands hopes the debunking of some bugaboos about Washington may serve to keep good people coming to Washington as WOCs.

Dr. Teller Hints at Future Nuclear Tasks

Dr. Edward Teller, "father of the H-bomb," and director of the University of California's Radiation Laboratory, would like to attempt several projects if he can get the financial backing: 1. Set off a nuclear explosion in an underground salt bed near Carlsbad, N. Mex., to make new isotopes. 2. Try to unlock oil from the tar sands of Atabaska, Canada, with nuclear shots while the ground is frozen. 3. Use nuclear energy to free oil from the shale in the Green River region of Colorado and Utah. 4. Use the H-bomb to utilize wasted desert water. Dr. Teller reports that the government is studying the feasibility of digging (with atomic power) a giant harbor on the northwest tip of Alaska.



Wickwire Bros. Inc.

Scale Orders Gain Weight

SALES OF industrial scales so far in 1959 are running 10 per cent ahead of last year's. Some manufacturers queried by STEEL think the increase may go as high as 25 per cent for the year.

Automation should be a boon to

many scalemakers (there are about 80 of one type or another). Their operations are keyed to new applications; equipment replacement is

of minor importance.

Increased use of conveyor belt weighing for free-flowing bulk materials is found with in-plant operations. ABCs Scale Div., McDowell Co. Inc., Cleveland, says customers report 15 to 17 per cent greater efficiency, lower maintenance costs, improved quality control, and less manpower in mills

fed by automatic weight control systems compared with volumetric mill feeding.

- Prices—They've held up fairly well despite some cutting. Some respondents indicate they are contemplating a 10 per cent price increase this year.
- Imports—Some scales are coming from Britain, Germany, and France. They undersell comparable domestic equipment by as much as 25 per cent (delivery charges included). But hard sell and high quality products have kept U. S. firms from worrying too much about foreign competition.

This country is presently the largest exporter of scales. Exports

are running 52 per cent ahead of those in 1954.

- Standards—Uniformity is lacking in state weight and measure laws. That creates confusion, states Martin-Decker Corp., Long Beach, Calif. STEEL's survey showed this complaint to be common among respondents. Too many weight inspectors are politicians; not enough are dedicated weight and measure men, declares Exact Weight Scale Co., Columbus, Ohio. The Scale Manufacturers Association Inc., the Bureau of Standards, and the National Conference on Weights and Measures are working to standardize regulations.
- Education More publicity is needed to acquaint buyers with the importance of scales and the need to replace obsolete equipment.

Thayer Scale Co., Pembroke, Mass., says that too often a scale firm is consulted after a new plant or installation is ready to operate. The opportunity to rig a more modern and efficient system is lost. It suggests consultation well in advance to avoid mistakes.

- Service—Education of customers and servicing their needs seem to go hand in hand. Many service problems develop from improper care or neglect. Some distributors, such as Ohio Counting Scale Inc., Cleveland, check and adjust scales periodically for customers on a flat rate basis.
- Electric Weighing—Some firms report electric scales are taking up to 5 per cent of the market. Electric scalemakers are optimistic. Says one: "Electric weighing will account for 25 to 40 per cent of all tank, bin, hopper, platform, conveyor, and crane applications within ten years." Mechanical scalemakers don't agree with that forecast but concede electrical competition will mount. Biggest obstacle: "Inertia from old timers," says Gilmore Industries Inc., Cleveland. Cost is frequently prohibitive with installations of 1000 lb capacity or less.
- Rentals—Some scales are rented rather than sold, particularly for annual inventory taking, says Howe Scale Co., Rutland, Vt.

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Your Olin Aluminum
Distributor can help
you operate with
minimum inventory (at
a great saving of your
own floor space). He
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and non-ferrous
metals, and is
ready to give you—

- The fastest possible service
- Aluminum to meet your precise requirements
- Free extra storage space by minimizing your inventory
- Expert technical assistance

Strikes Threaten Nonferrous Market

Contract deadlines are as ompinous as they are in steel. If walkouts begin on June 30, mand negotiations are as tough as preliminary talks have been, here's what to expect in othe supply and prices of metals

THIS COULD be a year of wide scale labor troubles in the non-ferrous industry. On June 30 contracts expire at 27 copper mines and refineries in the U. S. At least 20 other locations have contracts up for renewal between July 1 and Nov. 10 (see table).

Contracts at ten lead and five zinc facilities come up for negotiation between June 30 and Oct. 30.

Four brass mill contracts expire this month, four next month, and another 14 between June 30 and Oct. 31.

• Strike Odds—For the last few weeks management and the unions have had preliminary talks. Both sides have indulged in some tough talk, and indications of any kind of compromise are few. Insiders admit they don't know what will happen.

The International Union of Mine, Mill & Smelter Workers (largest in the nonferrous field) recently charged the copper producers with "dragging their feet" in current talks. The union says it is calling a meeting today to "assess developments" and to "take whatever action is necessary to achieve satisfactory settlements."

- What's Wanted—At its convention in March, the Mine-Mill union went on record as favoring several demands:
- Higher wages.
- Cost of living escalation clauses.
- Greater overtime pay.
- A 32 hour work week with no cut in takehome pay.
- Supplementary Unemployment
- Increased severance pay, paid sick leave, improved holiday and vacation clauses.

From preliminary verbal salvos fired by other unions representing nonferrous workers, it looks as if their demands will be fairly similar.

Battle scarred labor relations men say the unions may not be satisfied with agreements comparable to those signed in 1956—those in lead and zinc called for a wage package of 26.7 cents an hour over a three year period—24 cents in wages, the remainder in fringe benefits. Copper workers made out a little better: They received a wage package of 32 to 33 cents an hour, 24 to 27 cents of it in increased wages, the remainder in fringe benefits.

• Most Controversial—This year the unions will be pressing for escalation clauses, SUB, and, to a lesser extent, for the shorter work The companies will fight escalation all the way. They won't be much more willing to grant SUB or make any substantial reduction in the workweek. Producers may be willing to sign shorter term contracts (one to two years) to beat the issues. The union stands a much better chance of getting modest wage hikes and some concessions in certain fringe benefits, say observers.

The United Steelworkers (most of whose contracts expire after the Mine-Mill's) will hold a conference sometime in July where "demands will be formulated." Union officials hint demands will parallel those made in steel. They might even be higher if the policy committee decides to "try and catch up" in the fringe benefit area (they're not too far out of line in copper but are behind in lead and zinc fields, says the USW).

If the unions decide to strike, they'll have these factors going for them: Demand is good; stocks of copper aren't too high; and lead and zinc companies could have trouble moving their stocks if transportation unions refuse to cross picket lines. If steelmakers aren't struck, demand from galvanizers may be strong enough to force the zinc people to settle.

On the company side: Producers' stocks of lead are still high—about a four months' supply. Zinc is

near the two month level. July and part of August are traditionally slack periods for copper when fabricators shut down their plants for vacations. Mine-Mill is not a wealthy union and probably couldn't stand a protracted walkout.

- Bluffing?—With all the muscle flexing the unions have been doing, they've made fairly meek settlements with several companies whose contracts expired earlier this year. One lead company signed a two year contract calling for a wage boost of 4.75 cents an hour, some increase in incentive bonuses, and about the same fringe benefits. A brass mill signed for one year. It agreed to bump wages 7 cents an hour, increase fringes by 1.5 cents.
- Steel Is Key—It's unlikely there'll be many settlements until after steel signs. In fact, many metalmen believe nonferrous unions may keep working without a contract until the steel situation is cleared.
- What to Expect—Here's what you can look for in the way of availability and price if the non-ferrous unions walk out.

If a copper strike should last more than a month, prices would go up enough to attract foreign metal. Producers' and customers' stocks should keep anyone from being hurt for several weeks. If a strike were to run longer, stepped up imports, more output from some secondary smelters, and increased production from nonstriking mines and refineries would help. But a shutdown of more than two months would undoubtedly cause a serious shortage in this country.

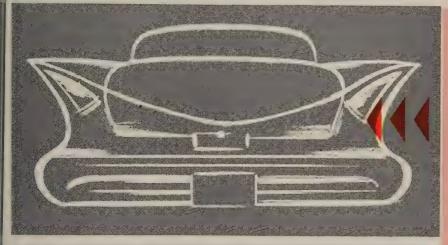
No shortage in lead and zinc is foreseen, with the possible exception of special high grade. Stocks are high, especially in lead, and not all mines and smelters would be struck. Plenty of idle capacity could be reactivated. If both steel and zinc settle without a strike, or if steel continues and zinc shuts down, the zinc price will rise.

It's hard to see the lead price being affected one way or the other by a strike. Lead will go the way of the general business activity—up.

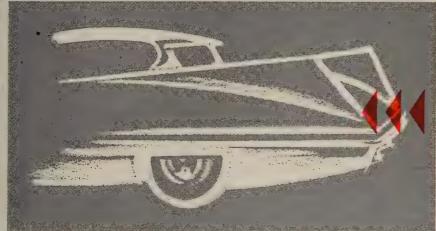


New Models Ready For Pilot Runs

As STEEL Artist Sees Them



All Ford models will have Galaxie roof lines. Rear quarters will resemble the Falcon's styling theme



Dodge's Dart looks much like its experimental forerunner. It's built on 118 in. wheelbase

LATEST DOPE from Detroit indicates 1960 models will appear about the same time as last year's, possibly a bit later. Buick will be delayed. Ramblers will be earlier. Outstanding features will be GM's Slim Line transmission, Plymouth's six cylinder, overhead valve engine, and Chrysler's unitized bodies.

GM Standardizes

This will be the last year for GM's single body shell, say Detroit insiders. The word is that 1961 models will be built on two shells.

But the single body will continue for 1960. Each division's car will have fresh sheet metal, although not all lines are getting a complete face lift. More components will be standardized. Hardtops are all supposed to be 55 in. high. Here's the updated story, model by model:

• Cadillac—Rumors die hard, but Cadillac will not have a transaxle next year. Consequently, it won't have a rear mounted generator either. For 1960, GM's luxury line is refurbishing sheet metal to clean up its fin line.

The egg crate grille design will be continued, but it'll be modified to give a more massive appearance. Engines will be identical with the '59s. So will transmissions and axle ratios. Air suspension is being adapted to take advantage of improvements made this year by

Oldsmobile (STEEL, June 1, p. 64).

• Buick—The silhouette is similar to that of 1959 cars. Bumpers are redesigned for a heavier look. The zinc diecast grille is continued.

Buick's triple turbine transmission is out, but regular Dynaflow will be available through 1960, say informants. After that, it may be ousted too. Body dimensions are about the same, but the floor pan has been dropped slightly so you can get into the rear seat easier. Engines and brakes are unchanged.

• Oldsmobile — New sheet metal below the belt line and a zinc diecast grille mark styling changes. Olds will be offering the Slim Line

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Hydra-Matic transmission that GM's announcing. The three speed job probably will be optional with the economy engine on the 88s.

• Pontiac—Victory Vs will be gone from Pontiac's rear quarters. zinc diecast grille replaces the pres-The smaller ent aluminum job. Hydra-Matic will be optional.

Pontiac is experimenting with a central hydraulic system, but it won't be ready for 1960. What will appear are aluminum brake drums on some models. Like Buick, they'll be on front wheels onlymay have metallic linings as a special option. Fuel injection will be available on top models only.

• Chevrolet — Sheet metal is changed below the belt line so rear fins won't appear quite so gull winged as this year's. The grille is changed, but it's still aluminum. The car reportedly is an inch or two longer and slightly wider. The floor pan has been lowered to give a larger seating package. Chevy will keep the optional four speed manual transmission. Fuel injection is still out. The Corvette has been restyled.

Ford Lifts Faces

Ford plans no major engineering changes for next year's big cars, but it is making extensive styling changes on two lines and will introduce a technical advance that promises to sweep the industry in a few years. Most of the company's 1960 efforts are aimed at its small car, Falcon.

• Ford Div.—The biggest styling change in the industry is supposed to show up in the Ford line. All new sheet metal gives it less pronounced blades that sweep into concave side panels. The round taillights, long an identifying mark, will be gone. Galaxie roof lines will be carried through all series. Station wagons and sedans will be built on the same 119 in. wheelbase, which is an inch longer than the '59s. The Fairlane is 213.7 in. long vs. 208 in. this year.

One change that will have farreaching results: Teflon woven fabric on T-Bird joints. Reason: Eliminate lubrication.

brake linings are supposed to be optional on the Bird.

• Edsel—In its last year as a big car, it will get few changes.

In '61, Edsel's name may be given to a second line of smaller cars that Ford is designing.

- Mercury—Fairly substantial sheet metal changes and swivel seats are Mercury's move. Side Vs have been considerably altered. Dimensions are about the same. Doors will be opening a bit into the roof line.
- Lincoln—Unitized bodies will be continued for 1960. Bumpers and grilles are redone, but basic styling stays the same. Front end sheet metal is new, to clean up the sculptured appearance wheel housings. The Continental series will continue through 1960, but talk is strong that it will go in '61 if the T-Bird merges into Lincoln's lineup and Mercury shares the Ford Div. body shell.

Chrysler's Unitized

Imperial is the only car in the company that won't have a stub frame and unit body. Its sheet metal is little changed. But it will have the long awaited current alternator to replace the direct current gen-Another Imperial first:

U. S. Auto Output Passenger Only

r assenger Only	
1959	1958
January 545,757	489,515
February 478,484	392,132
March 576,085	357,048
April 578,825	316,594
May 546,817	349,613
5 Mo. Totals 2,725,968	1,904,902
June	337,446
July	321,017
August	180,447
September	130,460
October	261,701
November	514,152
December	593,920
Total	4,244,045
Week Ended 1959	1958
May 16135,856	87,407
May 23 133,568	86,082
May 30 117,372	66,844
June 6 125,186	73,696
June 13 127,543†	78,163
June 20 128,000*	84,396
Source: Ward's Automotive	Renorts

†Preliminary. *Estimated by STEEL

Electroluminescent lighting on instrument panels.

- Chrysler, De Soto Except for minor sheet metal alterations and the unitized body, changes will be few. Torsion suspension continues. Basic engines are the same. De Soto will have fewer series, dropping from 13 to six or seven mod-
- Dodge—Dart is Dodge's big pitch to keep it in the lower end of the medium priced cars. Styling is markedly different from that of other Chrysler cars. It will have crisper lines and virtually no chrome. The roof line is flatter and front end squarer than the experimental Dart, but rear quarter panels are almost identical.

• Plymouth—Chrysler's price leader will be about an inch longer but no lower. The unitized body, however, permits a slightly larger seating package.

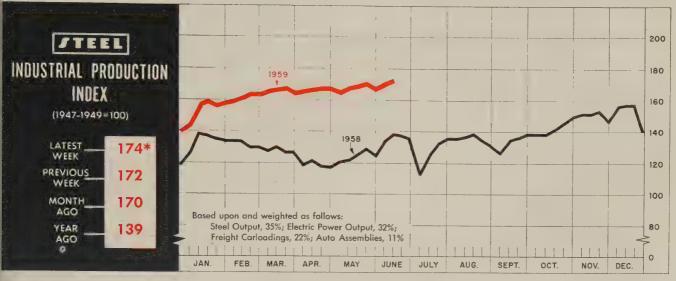
Plymouth's six cylinder, overhead valve engine is the division's biggest announcement. Horsepower is around 120—lower than the present six cylinder. Displacement is pegged at 170 cu in. The engine is supposed to have a ram tube manifold. It will also be used in the Valiant and will be canted insteady of mounted vertically.

Rambler Remodels

American Motors Corp. has restyled its entire line with the exception of the 100 in. American, which is unchanged. Body shells are modified to bring car heights down to 55-56 in. All sheet metal is changed. Roofs are flatter, and the larger cars reportedly have reverse backlights. The cars are still compact, but styling reportedly is clean, and the bulky lines are eliminated.

Lark Springs for Rag Top

Two changes are due for Studebaker-Packard Corp.'s Lark. One is redesigning its manual transmission linkage. The second is the introduction of a convertible into the Lark lineup. A few trim changes mark the 1960 Larks from the '59s.



*Week ended June 13

Expansion to Continue into 1961

NOW that the business recovery is a little over a year old, it is time to switch from the microscope to the telescope. The view is clear for the next year or so.

To be exact, the economy is no longer in a recovery stage but has entered the expansion phase of the uptrend. Most industries are at or above their prerecession peaks. Those that are not—mostly in capital goods—are clearly in the recovery stage and are making strong bids to reach their old highs within the next year. The total effort has put us a notch or two above the 1956-57 benchmarks for gross national product and industrial production.

• History Tells Us-While there is no foolproof way of pinning down the turn in this cycle, precedent indicates that we still have at least a year to go, and maybe Over the last half century, business upswings have lasted an average of a little over two years. (It necessarily implies that some have been shorter, especially prior to World War I, while others have been longer.) The tendency since World War II has been to longer periods of prosperity. The 1948-49 comeback measured 45 months from trough to peak. (The Korean War undoubtedly was an influ-In the uptrend after the ence.)

1953-54 setback, the term from bottom to top was 36 months. If this cycle does no better, we could expect a recession of sorts to set in about midyear in 1961.

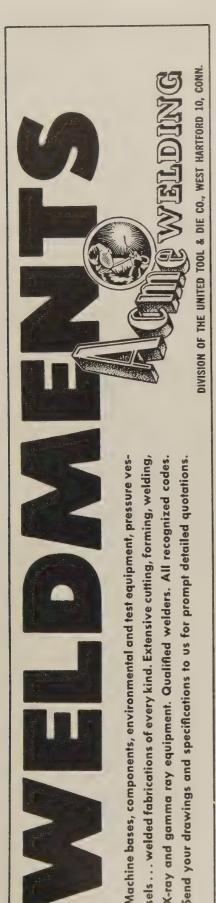
• Comparisons Favorable—While the current cycle is similar to the 1953-54 period for the most part,

there are a few differences that may effect the length of the upturn. For one thing, the recovery in the first year has been considerably sharper, rising 18 per cent above the trough. It has been almost without the benefit of a capital goods resurgence.

In the first year after the 1953-

BAROMETERS OF BUSINESS	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Production (1,000 net tons) ² Electric Power Distributed (million kw-hr) Bituminous Coal Output (1,000 tons) Crude Oil Production (daily avg—1,000 bbl) Construction Volume (ENR—millions) Auto, Truck Output, U. S., Canada (Ward's)	2,631 ¹ 13,500 ¹ 8,535 ¹ 7,100 ¹ \$522.8 165,090 ¹	2,604 13,023 8,150 7,032 \$315.7 162,200	1,751 12,109 7,725 6,335 \$505.5 105,566
TRADE			
Freight Carloadings (1,000 Cars) Business Failures (Dun & Bradstreet) Currency in Circulation (millions) ³ Dept. Store Sales (changes from year ago) ³	700 ¹ 314 \$31,803 +11%	683 264 \$31,641 +5%	622 325 \$31,052 +1%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions) Federal Gross Debt (billions) Bond Volume, NYSE (millions) Stocks Sales, NYSE (thousands of shares) Loans and Investments (billions) ⁴ U. S. Govt. Obligations Held (billions) ⁴	\$23,042 \$286.2 \$30.9 15,468 \$94.5 \$28.5	\$24,176 \$286.4 \$27.5 14,786 \$94.6 \$28.7	\$22,997 \$275.9 \$27.8 13,205 \$92.9 \$31.3
PRICES			
STEEL'S Finished Steel Price Index ⁵ STEEL'S Nonferrous Metal Price Index ⁶ All Commodities ⁷ Commodities Other than Farm & Foods ⁷	247.82 222.2 119.3 127.7	247.82 222.2 119.4 127.8	239.15 194.1 118.8 125.0

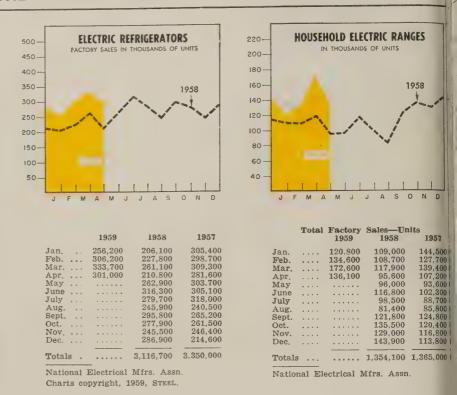
*Dates on request. ¹Preliminary. ²Weekly capacities, net tons: 1959, 2,831,486; 1958, 2,699,173, ³Federal Reserve Board. ⁴Member banks, Federal Reserve System. ⁵1935-39=100. ⁶1936-39=100. ⁷Bureau of Labor Statistics Index, 1947-49=100.



and

X-ray Send

THE BUSINESS TREND



54 slump, the gain, aided by the start of one of the biggest capital programs in history, was only 14 per cent.

Business analysts are looking for the gradual rise in heavy equipment to continue for some time. They point out that so far there has been no evidence of any major distortion or excesses, such as those which forced a severe setback in This points to perhaps a slower rate of rise in the total economy within the next two years, but it should be more sustaining.

• Composite Approach — James Dawson, vice president and economist for Cleveland's National City Bank, takes a "composite" approach. He points out that the ratio of inventories to shipments, orders, and backlogs is still low. Demand deposits, which usually level off prior to a business downturn, are in good position. A diffusion index, based on the 24 major components of the Federal Reserve Board's industrial production index, still shows a strong upward tendency. Almost all the eight leading indicators developed by the National Bureau of Economic Research are climbing. And, finally, an analysis of the GNP spending approach indicates further improvement well into 1960.

"How about the second half of 1960?" Mr. Dawson asks. "Neither the barometers nor the spending approach can see that far. But it is worth noting that a rising trend throughout 1960 would constitute an upswing of 32 months. During the last 100 years, only six of the 21 nonwar expansions have lasted that long."

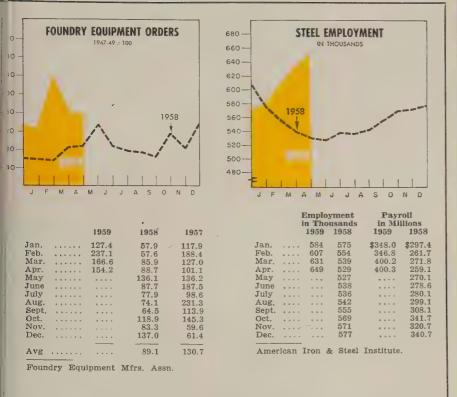
Other Factors Enter in

At least two other factors may influence the extent of the expansion phase. One is the change in the psychological climate. Says the Morgan Guaranty Trust Co. of New York: "The doubt and uncertainty created by the recession have all but vanished."

The other point, raised by Dr. John W. Harriman, economist for Tri-Continental Corp., New York, is that 1960 is a Presidential election year and that "economic decisions will be influenced more or less by political events."

Index Smashes Record

The strength of today's production effort is clearcut. Once again



STEEL's industrial production index moved to a record of 174 (1947-49 = 100) on the basis of preliminary figures for the week ended June 13. The previous week's reading of 172 matched the old record set just before Memorial Day.

Three of the components of the index advanced in the latest week; steel was the only one to show a decline. Electric power shot to near the 13.5 billion kw-hr mark as seasonal factors took hold. Railroad freight carloadings advanced again as iron ore, coke, and miscellaneous freight picked up. And auto production climbed slightly after showing the effects of the Memorial Day layoffs for the two preceding weeks. But cars are not rolling off the assembly lines as fast as when the industry hit its 1959 peak in May.

Steel operations hold the key to the immediate future of the index. Output of 2,604,000 net tons in the week ended June 14 was the lowest in five weeks as producers missed their goal by 77,000 tons. That was their last chance to set a record until late in the third or early in the fourth quarter.

Production was scheduled for 2,-620,000 tons last week, but it wouldn't be surprising if they failed to hit it again. They've missed

their schedules by an average of close to 40,000 tons a week during the last two months. With no sign of a contract agreement, producers are cutting back to get set for a strike.

Trends Fore and Aft

- Construction contracts are heading for a June record, reports Engineering News-Record. They totaled \$522.8 million for the week ended June 11. The cumulative total for the year is now 7 per cent greater than the corresponding figure for 1958. The total for industrial building is 32 per cent ahead.
- "Our backlog of orders for electrical and industrial apparatus now stands at an all-peacetime high of \$255 million," says R. S. Stevenson, president, Allis-Chalmers Mfg. Co.
- Business activity in the Pittsburgh area hit a postrecession high in the week ended June 6, says the Bureau of Business Research, University of Pittsburgh. Part of the gain was the result of heavier freight shipments.
- Electronics producers report sales so far this year are running about a third ahead of last year's. They think the trend will continue throughout the year.



Ohio Rolls

OHIO IRON AND STEEL

CARBON STEEL ROLLS
OHIOLOY "K" ROLLS
OHIOLOY "K" ROLLS
FLINTUFF ROLLS
DOUBLE-POUR ROLLS
CHILLED IRON ROLLS
DENSO IRON ROLLS
NICKEL GRAIN ROLLS
SPECIAL IRON ROLLS
NIOLOY ROLLS
FORGED STEEL ROLLS

Thaping metal for all industry

The Ohio Steel Foundry Co.

Lima, Ohio

Plants at Lima and Springfield, Ohio



GEORGE RUSSELL Amchem Products chief eng.



IRWIN W. KILLIAN Pines Eng. president



G. R. BOUWKAMP Valve Tappet mfg. manager



EDWIN W. VEREEKE Heil Process president

George Russell was promoted from assistant to chief engineer, Amchem Products Inc., Ambler, Pa. He succeeds Jay Biery, retired.

Irwin W. Killian was elected president and chief executive officer of Pines Engineering Co. Inc., Aurora, Ill. He succeeds the late B. F. Bower. Mr. Killian was executive vice president and general manager.

P. & M. Co., division of Poor & Co., appointed Roger B. Coleman vice president. He is in charge of the New York office.

John C. Helies was appointed president of Security Engineering Div., Dallas, Dresser Industries Inc. He was executive vice president-general manager.

C. E. Hunt was made acting sales manager, Fabricated Rebar Div., Phoenix Mfg. Co., Joliet, Ill.

Burr Tupper was made director of works engineering, Westinghouse Electric Corp., Pittsburgh. He succeeds Walter W. Wendelken, retiring.

William R. Dirksen was appointed vice president, Buffalo Steel Corp., Tonawanda, N. Y. He was assistant to the president.

At General Electric Co.'s Specialty Control Dept., Waynesboro, Va., Francis J. Pallischeck was named to succeed Harry L. Palmer as manager of engineering. Joseph F. Ponzillo succeeds Kenneth N. Bush as manager of manufacturing.

G. R. Bouwkamp was made manager of automotive valve tappet manufacturing at Chicago Screw Co., Bellwood, Ill. He is responsible for co-ordination and direction of engineering and manufacturing at the firm's Valve Tappet Div. He was chief production engineer, Tappet Div.

David I. Dilworth Jr. was appointed a vice president and assistant to the president, Braeburn Alloy Steel Corp., Braeburn, Pa. Charles W. Schuck was made vice president-manufacturing. Mr. Dilworth was director of metallurgy at Crucible Steel Co. of America.

Marcus M. Chapman was appointed an administrative vice president-commercial, United States Steel Corp., Pittsburgh. He is succeeded by Howard J. Mullin as vice president-sales.

Bert E. Phillips was made acting general manager, Industrial Truck Div., Battle Creek, Mich., Clark Equipment Co. He is succeeded as general sales manager of the division by John E. Mitchell. Mr. Phillips fills a vacancy created by resignation of Robert H. Davies to accept the presidency of Electric Auto-Lite Co., Toledo, Ohio.

Arthur J. Briggs was elected vice president, Continental - Diamond Fibre Corp., Newark, Del., subsidiary of Budd Co.

Jack R. Walchli was made manager, Licensing & Research Dept., Navan Products Inc., El Segundo, Calif., subsidiary of North American Aviation Inc. Edwin W. Vereeke, former executive vice president, was elected president, Heil Process Equipment Corp., Cleveland. He succeeds Carl E. Heil, elected to the new post of chairman.

George J. Platt was elected president, Paragon Electric Co., Two Rivers, Wis., to succeed his brother, the late E. V. Platt. George Platt was executive vice president.

Delco-Remy Div., Anderson, Ind., General Motors Corp., named J. H. Bolles to the new post of divisional director of product reliability. He was the division's director of sales and engineering and is succeeded by H. G. Riggs, divisional works manager since 1954. Robert L. Kessler succeeds Mr. Riggs.

Samuel B. Sherwin was made manager, Ketay Dept., Commack, N. Y., Norden Div., United Aircraft Corp. Wladimir Reichel, Norden's chief of basic design, and a pioneer in the field of instrument miniaturization, assumes added duties of engineering manager, Ketay Dept.

Clay P. Hepler, former vice president-general manager, Toledo Steel Roll Co., was named plant manager of Abbey Etna Machine Co., Perrysburg, Ohio.

Cyrus C. Chamberlin was appointed vice president-sales, Southington Hardware Div., Southington, Conn., Screw & Bolt Corp. of America.

Allis-Chalmers Mfg. Co. appointed William H. Davis assistant manager, Norwood, Ohio, Works's Elec-



GEORGE E. KOPETZ



Blaw-Knox group vice presidents



P. B. HARWOOD



E. B. FITZGERALD **Cutler-Hammer executive changes**

trical Dept., and James F. Fenske manager of the department's industrial sales.

George E. Kopetz, vice presidentproduction, was named vice president and general manager of Blaw-Knox Co.'s newly formed Fabricating, Engineering & Construction Group. Arthur E. Murton, former roll sales vice president, was appointed vice president-general manager of the new Foundry & Mill Machinery Group.

H. Webster Stull, labor counsel, was appointed director of industrial relations, Olin Mathieson Chemical Corp., New York.

J. J. Dall was made assistant general manager-electric welding, Linde Co., New York, division of Union Carbide Corp.

Jack E. Coddington was promoted to senior mechanical engineer, Technical Div., Armco International Corp., subsidiary of Armco Steel Corp., Middletown, Ohio. Albert L. Hacker was made industrial director, Armco Industrial e Comercial SA, Brazil.

William F. Slook was made manager of purchases, Watertown, N. Y., Div., New York Air Brake

William A. Harcum was made general manager, Eastern Research Center, Philadelphia, Robertshaw-Fulton Controls Co. Former head of the center's Physics Dept., he replaces Ralph V. Coles, named general manager, European operations, with offices in London. George Revesz was made technical director of the research center.

P. B. Harwood was appointed a senior vice president, Cutler-Hammer Inc., Milwaukee. Former vice president-engineering, he is succeeded by E. B. Fitzgerald, who was apparatus sales manager. Mr. Harwood will retire the latter part of this year. He now acts in a consulting capacity to the Engineering Dept. and to the firm's management.

David W. Dewey was named eastern division manager, Atkins Saw Div., Borg-Warner Corp. He resides in Saddle River, N. J.

Frank Cuthbertson was promoted to director of production engineering, AC Spark Plug Div., Milwaukee, General Motors Corp. Howard Fish was promoted to manufacturing manager; Charles Rose to manager of production control. Lawrence Bossman, plant engineer, was promoted to works engineer. In AC's Electronics Div., Vincent E. Ryb was made manager of the Titan intercontinental ballistic missile guidance program; Donald F. Ayres, manager of the Thor ballistic missile and the Mace jet-powered missile guidance programs.

Frank O. Riley was named director of engineering and sales, Ternstedt Div., General Motors Corp., Detroit. John D. McBrian was named chief engineer.

Nelson O. Scourfield, manager of the Dayton, Ohio, plant of Harris-Seybold Co., was appointed to the new post of vice president-Dayton

Edwin S. Dyjak was named Detroit district manager, Pratt & Whitney Co. Inc. He succeeds Alfred C. Ekberg, named to a similar post at San Francisco.

E. Albert Wagner, former manager of development engineering, Exide Industrial Div., Electric Storage Battery Co., Philadelphia, was named manager of Exide's Service Engineering Div. to succeed O. L.



FRANK CUTHBERTSON



HOWARD FISH AC Spark Plug manufacturing posts



CHARLES ROSE

TWICE-WROUGHT METAL

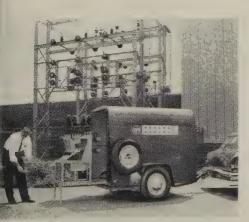
of die-pressed forgings helps Federal Pacific make new air bircuit breakers more rugged—cuts machining costs in half



In its new Type DST magnetic air circuit breaker line, Federal Pacific Electric Company, Newark, N. J., builds in dependable operation and long life with parts of outstanding mechanical and adequate electrical properties.

Typical of this attention to detail are the arcing contacts (left). Similar parts previously used had been castings or built-up assemblies. Now the contact bodies are Anaconda Forging Brass-250 die-pressed forgings. The twice-wrought metal is denser, stronger, withstands mechanical shock better—reducing the fatigue factor and producing longer service life. The contacts also have higher conductivity. And best of all, their consistent dimensional accuracy and smooth finish cut machining costs in half.

RIGHT: Movable arcing contact assemblies at the left and the stationary arcing contact assemblies at the right in a 5-kv Federal Pacific Type DST air circuit breaker. They have a momentary current-carrying capacity of 60,000 amperes. Contact tips of tungsten alloy are silver-soldered to the forgings. These are two of several areas where Federal Pacific uses the superior physical properties of Anaconda diepressed forgings to help provide dependable operation and long service life in its line of metal-clad switchgear.



Tederal Pacific takes its circuit breakers out to industrial and electric utility customers. Here a representative sets up a demonstration of a 5-kv, ,200-amp breaker in the field.



It is often easier than you think to achieve high quality and performance while simplifying fabrication and cutting over-all costs. American Brass technical specialists are constantly working with designers, production engineers and buyers, helping them meet their joint requirements—through the use of such Anaconda mill products as die-pressed forgings, extruded shapes, special-shape tubes. For this kind of practical help, see your American Brass representative or write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Toronto 14, Ontario.

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W. C. MARTIN JR. heads U. S. Fabricators



ALEX J. VOGL Wilton Tool president



ARTHUR G. TICHENOR AmForge president



W. R. VARNEY
Angelus Steel Treating pres.



GEORGE L. SPENCER JR. American Zinc, Lead v. p.



M. J. LEONARD Sierra Schroeder v. p.

Robertson, recently named motive power market manager.

W. R. Varney was elected president and general manager, Angelus Steel Treating Corp., Los Angeles. He was manager, Heat Treating Div., Calmec Mfg. Corp.

George L. Spencer Jr. was elected vice president, American Zinc, Lead & Smelting Co., St. Louis. He has served as a vice president of the subsidiary, American Zinc Co. of Illinois, since 1955.

Sydney M. Stoller was named vice president-engineering; Jack L. Schumann, vice president-sales, Vitro Engineering Co., New York, division of Vitro Corp. of America.

James F. Mersereau was appointed a vice president, Petroleum-Refinery & Chemical Div., Arthur G. Mc-Kee & Co. He is responsible for accelerating development of foreign operations. He was a vice president of Foster Wheeler Corp., as head of its International Div.

M. J. Leonard was appointed executive vice president, Sierra Schroeder Controls Div., Idaho Maryland Mines Corp., Glendale, Calif. He has been in the aircraft and automotive engineering field for the last 20 years.

Glenn Mason was made sales manager, Jes-Cal Co., Fraser, Mich., subsidiary of National Automatic Tool Co. Inc.

John Roberts was made assistant general manager, American Sinteel Corp., Yonkers, N. Y., subsidiary, Mueller Brass Co. He was general manager, Allied Products Corp.

Stuart J. Heiss was elected vice president, M. S. Kaplan Co., Chicago.

W. J. Cox was made superintendent of conditioning yards, material handling, and rolling mill cranes at Kaiser Steel Corp.'s Fontana, Calif., plant. He was assistant superintendent of the conditioning yards and material handling.

W. C. Martin Jr. succeeds Walter A. Locker, resigned, as president, United Steel Fabricators Inc., Wooster, Ohio. Mr. Martin was president of Magni-Power Co., Wooster. David A. Taggert was appointed secretary.

Alex J. Vogl was appointed president of Wilton Tool Mfg. Co. Inc., Schiller Park, Ill. He was general manager. William Ferrick, sales manager, was appointed vice president-sales manager.

Arthur G. Tichenor was appointed president, AmForge Div., Chicago, American Brake Shoe Co. He was with Arthur D. Little Inc. Before joining the Little organization, he was director of manufacturing, General Products Divisions, Westinghouse Electric Corp.

James A. Neff was made vice president-general manager, Mechanical Air Controls Inc., Detroit.

Richard S. Skinner succeeds W. H. Taylor, retired, as Philadelphia district manager, Tubular Div., National Supply Co.

Fred O. Snyder was made manager of Worthington Corp.'s Cincinnati district sales office. He succeeds Ralph G. Griffin, transferred to the Harrison, N. J., office.

Edwin G. Chapman joined Hitchiner Mfg. Inc., Milford, N. H., as sales manager. He was chief engineer, Misco Precision Casting Co.

John V. Spray was made quality control chief, Scientific & Process Instruments Div., Beckman Instruments Inc., Fullerton, Calif.

Midwest Piping Co. Inc., St. Louis, appointed as vice presidents: T. R. Taylor Jr., former Eastern Div. manager; E. B. Stolle, former Pacific Div. manager; Norman B. Champ Jr., former assistant to the president.

OBITUARIES...

Robert E. Noble Sr., division engineer for Mesta Machine Co., Pittsburgh, died May 25.

James C. Mabe, 41, vice president in charge of plant operations, Chicago Pneumatic Tool Co., New York, died recently.

Sheffield Opens Rod Mill

THEFFIELD DIV., Armco Steel Corp., is operating its \$10 million od mill at its Kansas City (Mo.) Norks. Planning and construction of the 23 stand, three strand mill look five years.

Preliminary estimates indicate the 0 in. mill will more than triple od production at the plant. Its burpose: To produce competitively briced, high quality finished rods for reinforcing and wife rope and ncrease production of wire mill and bolt and forged products.

• Operating Cycle — The produccion cycle begins with steel billets that weigh 1000 to 1800 lb, are 40 It long, and $2\frac{3}{4}$ to $3\frac{5}{8}$ in. square. They are reheated to 2100° F and pushed into the rod mill (roughing mill, intermediate mill, looping mill with its three repeaters, and six stand rod finishing train).

From the finishing train, rods pass through a four stage, high pressure water descaler. Traveling up to 6500 fpm, the rods are de-

livered into reels.

 Mill Features—Roller twist guides make high speed possible. The guides are set at a 45 degree angle and automatically twist rods after they pass through stands No. 1, 3, and 5 in the rod finishing train. If the guides meet expectations, rolling speed will be greatly increased in future mills, Armco officials say.

Other features include: Continuous circulating lubrication systems; a signal control panel which automatically locates trouble spots in the lubrication systems; two hydraulic systems for traverse alignment and top roll balance; magnetic amplifier speed regulating equipment which controls the speed of the mill's 23 stands to within 0.25 per cent; a narrow gage railroad which transports crop ends from beneath the mill to a scrap car; and a Rust, two zone billet reheating furnace which has a rating of 112 tons an hour.

At present, the mill will coil rods 0.218 to 7/16 in. in diameter. Pouring reels to be installed this year will enable the mill to coil 7/16 in.

to $1\frac{3}{8}$ in. rods.

• Will Expand Facilities-Not all the 11,500 hp of the main drives will be utilized now. The mill has been designed to roll skelp, merchant bars, and shapes. The reserve power will be needed when facilities are expanded to include those products.

Morgan Construction Co., Worcester, Mass., is the designer and builder. Westinghouse Electric Corp., Pittsburgh, supplied the electrical equipment. The general contractor is Rust Engineering Co., Pittsburgh.

J&L Improves Mill

Construction of facilities for the handling of cold-rolled sheets and coils at the Cleveland Works of Jones & Laughlin Steel Corp., Pittsburgh, is nearing completion. The facilities, costing about \$3.5 million, consist of product loading and material handling equipment, and increased truck and railroad carloading facilities in an enclosed area of more than 105,000 sq ft.

Buys Two Straighteners

Pacific Tube Co. has ordered two straighteners from Blaw-Knox Co., Pittsburgh, for installation at its bar and rod plant in Los Angeles. A two plane, 16 roll unit will straighten shapes $\frac{1}{2}$ to $2\frac{1}{2}$ in. in cross section. A two roll, rotary straightening, sizing, and polishing machine will work on rounds 1 to 41/2 in. in diameter. The processing lines will produce cold drawn bars 3/16 in. and larger, in rounds, squares, and hex-

Dedicates Research Center

Harbison-Walker Refractories Co., Pittsburgh, dedicated its \$2 million Garber Research Center in West Mifflin Township, Pa. Offices and instrumental research are housed in one of the two main buildings; a pilot plant for product development is in the other. The mineral identification laboratories contain microscopic equipment for studies with transmitted and reflected light, emission and x-ray spectrographs for semiquantitative analyses, and an x-ray diffractometer for crystal or mineral identification. The section also has a well equipped analytical chemistry laboratory and photographic facilities.

Raymond E. Birch, director of research, reports to E. T. Hile, vice president. The management group at the center is headed by Donald F. Stock, laboratory manager, and Dr. Edwin Ruh, assistant director of research. Donald F. King is assistant laboratory manager.

MPB Plans Research Center

Miniature Precision Bearings Inc., Keene, N. H., is erecting a 40,000 sq ft building which will be used chiefly for research and development. Other activities will include the manufacture of new products in the precision metalworking field. Cost: \$500,000.

Takes Over Forge Plant

Allegheny Ludlum Steel Corp., Pittsburgh, has expanded its Forging & Casting Div. to include the firm's Los Angeles forge plant which is now under the general direction of M. R. Hemphill, general manager of the division, Ferndale, Mich. The firm's Buffalo foundry was made a part of the division last March, and its manager, L. B. Polen, was appointed manager of manufacturing for the expanded division.

Boosts Melting Facilities

Firth Sterling Inc., Pittsburgh, is constructing new melting facilities and a building to house its recently acquired Hopkins (Kellogg) process. The building will be erected at the firm's McKeesport, Pa., plant and will contain about 11,500 sq ft of manufacturing area and 1500 sq ft of office space. Melting facilities will include three machines which will be transferred from the Kellogg plant in New Jersey. They are capable of producing ingots up to 15 in. in diameter, weighing 3300 lb. A new melting machine will be installed. It will be capable of producing ingots up to 20 in. in diameter, weighing about 4 tons. Combined capacity of the melting facilities will be 800,000 lb of metal a month.

(Please turn to Page 72)

Dun & Bradstreet Announces

metalworkin directory

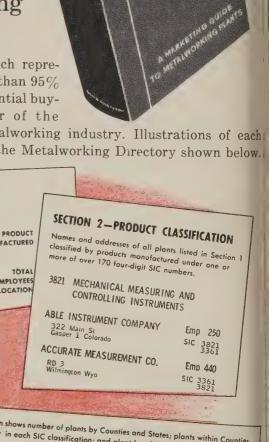
a comprehensive marketing guide to 30,000 metal producing and metalworking plants with 20 or more employees.

JOPLIN (Harris Co)

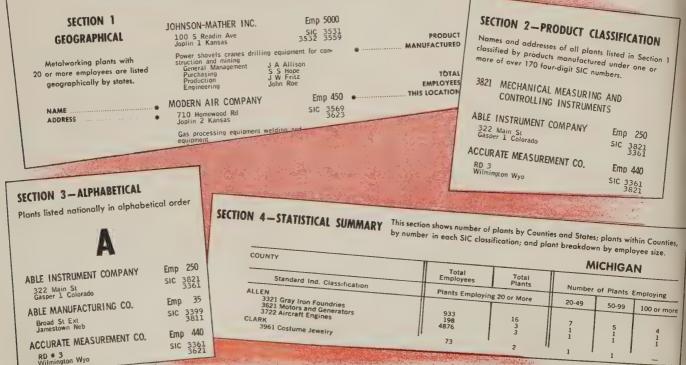
The new Dun & Bradstreet Metalworking Directory gives exact plant locations . . . number of employees . . . tells in two ways what each plant makes by Standard Industrial Classification Number and in narrative...names key personnel at plant...all the information you need for complete sales coverage of the

plants which represent more than 95% of the potential buying power of the

entire metalworking industry. Illustrations of each section of the Metalworking Directory shown below.



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A new sales guide—national in scope—for the metalworking industry

INCREASE SALES— KNOW YOUR MARKET POTENTIAL ITH THIS DYNAMIC NEW SALES TOOL

Metalworking Directory—the most useful tool of its kind in the metalworking industry vgive you facts to

Determine sales potential of each of your sales perritories

Aeasure sales performance against potential surre prospect coverage

let realistic sales goals

Adjust sales territories according to actual ales potential

Guide salesmen to the right prospect—to the light man

repare mailing lists so advertising will reach the right person in the right plant

study potential of territory and lines you are ot now covering

Assign sales manpower according to work load

cocate additional prospects in your present elling area

Allocate advertising and sales promotion dolars by area and line

Distribute catalogs to the right person

-By-Step Marketing Procedure ined In Metalworking Directory

ded in the METALWORKING DIRECTORY is a by-step outline designed to help you find factual vers to your marketing and sales problems. This to-understand outline, prepared after consultawith top marketing professionals in the metal-ting field, makes it simple for you to perform own marketing research.

ional Editions of Metalworking Directory lable!

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- ★ Produced in four sections—by name; by product; geographically; and with STATISTICAL SUMMARY showing plants and EMPLOYEES by counties and states.
- ... all plants with major products made wholly or substantially of metal
- ★ Shows by over 170 4-digit Standard Industrial Code Numbers both primary products and secondary products manufactured. Up to six classifications will be indicated for each plant.
- Management personnel listed by name including purchasing, production and engineering executives, where available.

Regular Price—National Edition \$350

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	We want to take advantage of your pre-publication charter subscription to the national edition of the Metalworking Directory. Please send us an order form.
	Have your representative call to give us additional information on the national Directory.
	Have your representative call to explain the regional Directories.
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71

une 22, 1959



Buell Cyclone System on gas duct exit of sintering machine at Jones & Laughlin, Cleveland.

BUELL High Efficiency Cyclones at Jones & Laughlin

Specially designed for sintering machine operation, these Buell extra-efficient cyclone collectors handle 280,000 CFM of dust-laden gases from sinter bed before entering exhaust fan. Sixteen large-diameter cyclones at exhaust fan and four at the discharge end recover an important *extra percentage* of dust, beyond the abilities of ordinary cyclones, that contributes to the operating efficiency of the machine.

Only Buell Cyclones have the "Shave-off", which traps dust rising in the double eddy currents within the cyclone. This uniquely successful feature increases cyclone efficiency, permits large-diameter design which eliminates bridging, clogging, or plugging. Heavy plate construction and 3/4" refractory lining provide long service life and minimum maintenance.

Decades of experience in the collection and recovery of industrial dusts back up Buell engineers. An analysis of your plant's dust collection problems may be made without cost or obligation. For a copy of the booklet, "The Exclusive Buell Cyclone", just write Dept. 26-F, Buell Engineering Company, Inc., 123 William Street, New York 38, N. Y.









BUELL

"SF" ELECTRIC

PRECIPITATOR-CYCLONE COMBINATIONS



Experts at delivering Extra Efficiency in

DUST COLLECTION SYSTEMS

(Continued from Page 69)

Also contained in the new building will be motor generating and rectifying equipment and a recirculating water system for the melting machines. Supplemental equipment will include grinding, sawing, and pickling facilities.

Solar Steel Opens Plant

Solar Steel Corp., Cleveland, has initiated cold roll forming operations at its Hanover plant in Union, N. J. The firm entered the roll forming field as the result of purchase of the Mechanical Steel Tubing Corp., New York. Over \$500,000 worth of high speed roll forming equipment has been installed in a new wing of the plant.

McKay Makes German Line

McKay Machine Co., Youngstown, has been named sole manufacturing agent in the U.S. for Mannesmann-Meer, Duesseldorf, Germany. Both firms engineer heavy duty metalworking equipment. Mannesmann-Meer specializes in steel mill equipment, including seamless tube mills, extrusion presses for tubular products, rotary tube and bar straighteners, cold Pilger machines, cold draw equipment for tubing, stretch reducing mills, rotary flying hot saws, and general associated handling equipment. McKay Machine products include cold roll forming equipment, electricweld tube and pipe mills, cold draw equipment for bars, roller levelers, press feed lines, coil cutup lines, and special automatic production machinery.

Enlarges Tubing Plant

Superior Tube Co., Norristown, Pa., has completed construction of an office building and factory addition in that city. Installation of production facilities in the addition is being rushed to completion. Total cost: \$2 million. This is part of Superior's \$5 million expansion program started in 1956. A large portion of the new facilities will be devoted to the processing of tubing from such metals as titanium, zirconium, columbium, vanadium, tantalum, and hafnium. Another part of the addition has been assigned to further development work on exra long capillary tubing. Office and aboratory area has been almost loubled.



ASSOCIATIONS

Malleable Founders Society, Eleveland, elected these new officers: President, D. V. Walker, Eberhard Afg. Co., Cleveland; vice president, L. P. Speitel, Pennsylvania Maleable Iron Corp., Lancaster, Pa. The Charles H. McCrea Medal was warded to C. D. Joseph, Central Joundry Div., General Motors Lorp., Saginaw, Mich.

Malleable Castings Council, Eleveland, elected these officers: President, R. J. LaMarche, American Italieable Castings Co., Marion, Dhio; vice president, James Sweeney, Italieable Malleable & Steel Castings Co., Cleveland; treasurer, J. T. Dougherty, Canton Malleable Iron Italieable, Canton, Ohio; and secretary, J. Kirby, Northern Malleable ron Co., St. Paul.

American Powder Metallurgy Intitute re-elected Robert C. Burgess, Jurgess-Norton Mfg. Co., Geneva, II., president. APMI is the techology division of the Metal Powder ndustries Federation, New York.

National Association of Business Iconomists, newly formed, has this nailing address: P. O. Box 6878, Philadelphia 32, Pa. Officers are: President, A. G. Abramson, SKF Inustries Inc., Philadelphia; vice resident, G. C. Smith, F. W. Dodge Corp., New York; treasurer, S. E. Rolfe, C.I.T. Financial Corp., New York; and secretary, C. B. Reeder, E. I. du Pont de Nemours & Co., Vilmington, Del.



NEW ADDRESSES

Wales-Strippit Inc., a unit of Houdaille Industries, Akron, N. Y., noved its West Coast Div. office o 6440 E. Corvette St., Los Angeles 2, Calif. Production and warehousing facilities have been tripled.

Tomkins-Johnson Co. moved its plant and offices to 2425 W. Michigan Ave., Jackson, Mich. The firm (Please turn to Page 78)



PETERSON STEELS, INC.

Union, New Jersey • Detroit, Michigan • Chicago, Illinois

450-Ton Ladle Crane with all motions ECaM controlled. Hoist motors are operated by the well-known ECaM Wright Dynamic Lowering Circuit controller, noted for its safety, simplicity and reliability. For details, ask for Bulletin 6100. THE ELECTRIC CONTROLLER & MFG. CO. A DIVISION OF THE SQUARE D COMPANY CLEVELAND 28 - OHIO

ames the giants at Columbia-Geneva!

GIANTS AT WORK...keeping a tight rein on the toughest and most exacting operations at the Columbia-Geneva Works of United States Steel Corporation is the responsibility of EC&M control. Here, at Geneva, as well as throughout the metal-producing industry, EC&M control apparatus and engineering have earned a reputation for safe, reliable performance in basic steel making.

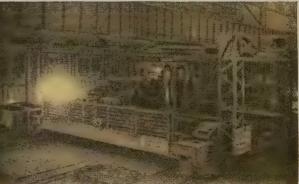
EC&M control is built to meet the rigid demands of open hearth and rolling mill departments. For cranes, charging machines and mill auxiliary drives, EC&M control equipment is unexcelled.



Operator's pulpit, overlooking the 132" reversing-rougher, contains EC&M Slider-Contact panels for automatic-positioning of horizontal and vertical rolls. Slider-Contacts may be moved up or down to change to new rolling schedules or to make minor adjustments quickly when rolls are changed. Roller operates a single push button to produce products rolled to accurate tolerances. For complete facts, write for Bulletin 6550.



EC&M 65-inch Type SW all-welded lifting magnet on overhead crane successfully withstands wide temperature changes in handling crop-ends from cooling pits. Bulletin 1300 describes EC&M lifting magnets for steel mill service.



The tough service encountered on charging machines is the acid-test of EC&M control. Here, highly repetitive operation under maximum loading brings out the long-life qualities of EC&M Line-Arc magnetic contactor control.

FOR BASIC STEEL MAKING, IT'S EC&M CONTROL



(Continued from Page 75) makes milling cutting tools, air and hydraulic cylinders, and riveting machines.



Lamp Div., Westinghouse Electric Corp., will observe its annual vacation period the last two full weeks in July with operations in general stopping at the close of business on July 17. Resumption of full operations in all parts and material plants is scheduled for Aug. 3.

Pines Engineering Co. Inc., specialists in tube fabricating machinery, Aurora, Ill., will close June 28 through July 11.



Latrobe Steel Co., Latrobe, Pa., manufacturer of tool, die, and specialty steels, established a steel service center for its line of Badger oversize flat ground stock at 359 W. Ray St., Indianapolis, Ind. Don R. Shuck is in charge of the operation. The firm has also established a similar facility at 525 E. Chicago St., Milwaukee, Wis., under the direction of T. H. Fortmeier who is manager of the branch office at 2040 W. Wisconsin Ave., that city.

Ace Drill Bushing Co. Inc., Hollywood, Calif., is building a 25,000 sq ft plant at Pierce Avenue and Rindge Road, Arlington, Calif. Occupancy is expected next month.

Alsca Beryllium Machining Corp., Valley Stream, N. Y., has established in that city a plant designed especially for ultrahigh precision machining of beryllium metal components. It complies with Labor Department recommendations for handling this potentially toxic material. Initial output is in custom machined electromechanical components for the missile and space research program. Tolerances obtained on the advanced fabricating equipment are held to 25 millionths of an inch.

Imperial Battery Co. is erecting a plant in Lynchburg, Va., to make

Here's information on a new plastic chrome ore from Porter's Pascagoula Plant Plastikrom

HIGH RESISTANCE TO BASIC SLAGS HIGH AIR SETTING STRENGTH



HIGH REFRACTORINESS-LOW SHRINKAGE PROPER WORKABILITY-READY TO USE

echnical men know there is a difference in plastic rome ore refractories . . . some chrome ore refracries resist heat, shrinkage and deformation, others e less satisfactory. The secret: crystalline structure chrome ore.

ome ores, because of their crystalline structure, are ore *plastic*. Less desirable ores require greater lditions of clay to produce a plastic material . . . hder high-temperature conditions, the clay fluxes e chrome and the refractory fails.

PLASTIKROM from Porter's Pascagoula Plant is made from select ores having a crystalline structure that develops a natural plasticity. Only minor clay additives required. PLASTIKROM is processed and manufactured in the industry's newest, most modern facilities, to highest quality standards.

For the finest, high-grade plastic chrome ore refractories . . . specify PORTER PLASTIKROM. Complete information available from: Refractories Division, H. K. Porter Company, Inc., Porter Building, Pittsburgh 19, Pa.

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Here's smoothness and luster you rarely get in tinned wire. Continental's technical skill makes possible an enduring, uniformly bright finish . . . a wire so bright that it can replace plated wire on many products. It retains its brightness for long periods of time in normal use. Continental tinned wire meets your needs for quality and workability and is available in almost any temper and analysis in medium low carbon and low carbon steels.

FINE—16 gauge through 30 gauge, in 8" diameter coils **COARSE**—20 gauge through $\frac{5}{16}$ ", in 16" and 22" diameter coils.

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Send Complete Details	☐ Have Salesman Call					

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PRODUCERS OF: Manufacturer's Wire in many sizes, tempers, and finishes, including Galvanized, KOKOTE, Flame Sealed, Coppered, Tinned, Annealed, Liquor-Finished, Bright and special shaped wire, Also Welded Wire Reinforcing and Galvanized Fabric, Nails, Continental Chain Link Fence, and other products.

automotive, diesel, and industrial batteries. Officers of the firm are: President, H. P. King; vice president-sales, R. L. Lawrence; secretary, LeRoy F. Groff; and treasurer, S. E. Merkel.



Torrington Co., Torrington, Conn., opened a district office at 244-246 Walker St. S.W., Atlanta, Ga. Larry Paine is the district engineer in charge of the office. This is another step in the firm's expansion of its Bearing Div., Torrington, and its Bantam Bearings Div., South Bend, Ind.

Acme Industries Inc., maker of air conditioning and refrigeration systems, Jackson, Mich., established a direct factory sales office at 18450 Livernois Ave., Detroit, Mich.



CONSOLIDATIONS

Allis-Chalmers Mfg. Co., Milwaukee, plans to acquire Lakefield Mfg. Co., Wauwatosa, Wis., fabricator of components for tractor shovels and side booms used on construction machinery. It has been a supplier to Tractomotive Corp., Deerfield, Ill., which Allis-Chalmers also plans to acquire.

American Machine & Metals Inc., East Moline, Ill., purchased Glazer-Steers Corp., Newark, N. J., maker of record changers for high fidelity and stereophonic use.

Chromalloy Corp., White Plains, N. Y., acquired Chromizing Co., Los Angeles, producer of metal castings and alloys.

Halliburton Oil Well Cementing Co., Duncan, Okla., plans to acquire Otis Engineering Corp., Dallas, manufacturer of oil tools and equip-

Art Metal Construction Co., purchased Knoll Associates Inc., Knoll International Ltd., and Knoll Textiles Inc., manufacturers and designers of furniture and textiles. Headquarters of the firms are in New York.

Technical Outlook

June 22, 1959

NEW CORES DON'T CRAZE—A new molybdenum alloy makes a superior diecasting die core material, says the American Die Casting Institute Inc., New York. It effectively resists heat checking and crazing even when brass or magnesium and aluminum base alloys are handled.

SAVE WITH PLASTIC DESIGN— Savings in steel and design time are the goals of a series of lectures for engineers being sponsored by the American Institute of Steel Construction Inc., New York. They're being given in 11 cities. Registration fee: \$6.

GRAPHITE HOLDS 3 MILLION PSI—B a s i c solid state studies have turned up graphite filaments with tensiles of 3 million psi, a 1000 times increase above normal. Availability of perfect crystals is expected to broaden research subjects and turn up practical applications, says Union Carbide Metals Co., a division of Union Carbide Corp., New York.

LITERATURE CATALOG— You'll be able to locate technical literature far more easily when world leaders decide on a master plan for cataloging. Western Reserve University and Rand Development Corp. have a world conference scheduled for September at Cleveland.

METRIC INCH: PRO AND CON— "I have long been convinced that ultimately the U. S. must shift to the metric system," says Lewis L. Strauss, secretary of commerce, who recently addressed the American Physical Society. But proponents of the decimal inch observe an increasing trend toward its adoption rather than the metric system, says the American Society for Testing Materials, Philadelphia.

PRINTED CIRCUIT BEATS HEAT— A printed circuit made of alumina and a fired on molybdenum-manganese compound operates perfectly at 1300° F, a threefold increase over ordinary print-

ed circuits, says Advanced Vacuum Products Inc., Stamford, Conn. (George L. Heitman, production manager, calls it a Molumina circuit.) Advantages cited: It's unaffected by moisture, operates in corrosive atmospheres, and greatly increases physical and electrical characteristics. The circuits can be degreased or scrubbed with soap and water.

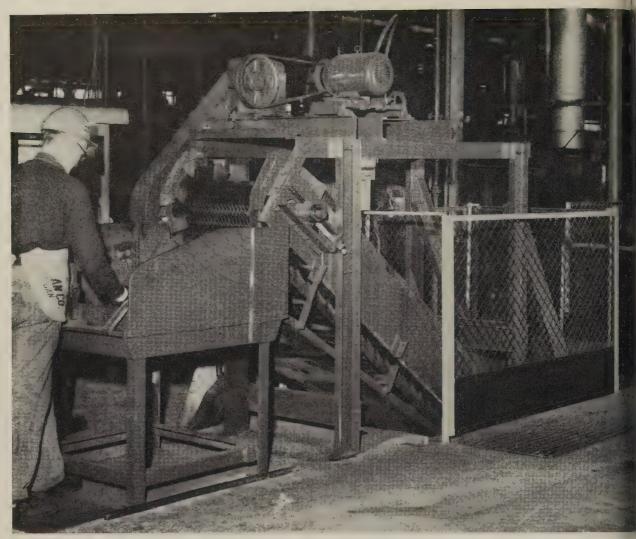
NEW DIECASTING ALLOY—HMI1XA is the latest member of the magnesium thorium group of alloys for service above 500° F. It retains its properties through 800° F, says Dow Chemical Co., Midland, Mich., and can be used with regular diecasting equipment.

IRON ORE CONCENTRATOR— Roasting Labrador hematite in a reducing atmosphere produces magnetite which can be readily separated from non-ore bearing particles. The process nearly doubles the iron content (38 per cent becomes 71 per cent), say Canadian federal mine scientists.

PORCELAIN GAINS UTILITY— Steel or aluminum expanded metals now come with a series of porcelain enamel coatings for decorative grilles, signs, or backgrounds, says Ingram-Richardson Mfg. Co., Beaver Falls, Pa.

HI-TEMP ELECTRICAL CONDUCTOR—Combining copper and zirconium produces an excellent alloy for electrical equipment operating at high temperatures, says American Metal Climax Inc., New York. It is said to be far superior to unalloyed copper.

CHEAPER VACUUMS— A \$235 pump uses vaporized titanium to react with stray molecules of gases and produce a high vacuum (it's called gettering). Two can evacuate a 6.5 gallon container, lowering the vacuum from 50 microns to 0.1 micron in 8 minutes, says NRC Equipment Corp., Newton, Mass.



Present practice line shows difference from other types of heat treatment. Cooling rate reaches 1050°F right at proper transformation point but passes through bainite line before it reaches 900°F. Salt is kept at 650-675°F

Isothermal Heat Treating Approach Wins Savings, Quality Bonus

Steel firm tailors salt bath technique to replace standard oil quench and draw of eutectoid steel parts. Results: Savings in labor, floor space, and equipment

A NOVEL modification of a standard salt bath technique (austempering or isothermal annealing) brought savings in labor, floor space, and equipment costs to a major eastern steel company. A bonus, better quality, was unexpected.

Product: A 3 lb rail hook made of a eutectoid steel.

Method: A 650 to 675° F quench in molten salt, following a 1700° F heat and forming operation.

Result: Complete transformation of the metal into fine pearlite.

• The old system was too inflexible and required too close control.

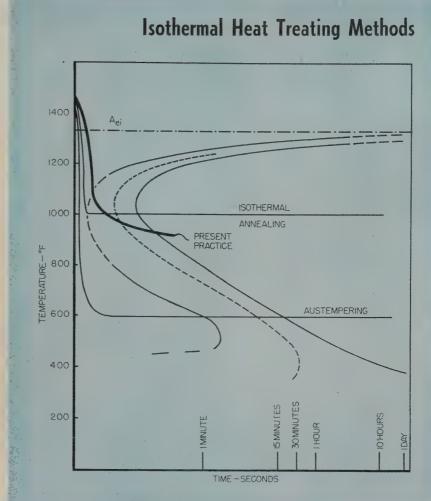
The product must have spring

properties, toughness, and resist deformation since it may be re-used several times. It starts as a $2\frac{1}{2}$ in. billet which passes through primary and finishing mills to become a modified T-section blank about 2 in. high and a foot long.

Blanks are heated to 1850° F in a gas furnace, formed in two stages on a press, and heat treated.

Parts used to come from the forming press (at 1700° F), dropping into an oil quench tank with jet agitation. Gas fired or electric furnace tempering followed to pro-





uce a tempered martensite.

The trouble with the old sysm stemmed from a lack of flexility. As long as production moved a steady pace, parts came out ith the proper hardness. But let breakdown occur, or the operating the take a break, and parts got vertempered—hardness fell below becification. Another thing: Many mes an operator was permitted to ecide whether parts were properly ardened.

Part temperature before quench as also too critical. Delay cooled he piece from a normal 1700° F reatly affecting proper quenching.

Replacement with Holden furnace quipment followed extensive exerimentation.

Company engineers decided to put a new system and replace the empering furnaces with a salt ath and automatic conveyors. They est planned to have a 20 minute emper at 1050° F, but A. F. Holden Co., Detroit, warned against plunging an oil-quenched part into molten salt.

First attempts to anneal the parts isothermally-cooling from 1700° F to 1050° F in 0.75 second produced coarse pearlite which wasn't hard enough. Work with temperatures between 500°F and 1050° F brought out the fact that 600 to 650° F produced exactly what was needed. And there was no trace of bainite which is supposed to form at quenching temperatures under 900° F. Steel company metallurgists believe the cooling rate is just right to complete transformation of the microstructure into fine pearlite before the part reaches 900° F—transformation is complete in 10 to 20 seconds.

Initial tests were carried out on laboratory equipment; later, a 3000 piece batch was put through the paces on Holden equipment at Detroit. Once results were confirmed, steel company officials decided on a continuous design which would handle 30 parts a minute (each weighs 2.4 to 3.9 lb, depending on cross section).

The trick is to have a large salt volume to take care of the heat.

The conveyor which carries the parts through the salt bath is timed to hold them under for 3 minutes—a large safety factor since theoretically it should take only 20 seconds for complete transformation.

(The furnace holds about 233 cu ft of potassium-sodium nitrate that is well-agitated to insure a high handling capacity.)

The present system is so uniform plant engineers can exactly correlate carbon content and hardness. It produces parts with improved spring characteristics that last longer in service than previous products.

And the reason Holden people are pleased is that the installation cost of three units equaled the cost of one proposed originally.

These Men Score Breakthrough For Vapor Deposition



Louis Mager, executive vice president, Dr. Romeo G. Bourdeau, project supervisor, and Dr. B. L. Averbach, chairman, Alloyd Research Corp., discuss new process for depositing dense, adherent coatings of tungsten, chromium, and molybdenum on metals and refractories. (Dr. Averbach holds a ¼ in. tungsten tube with walls 0.002 in. thick)

COULD YOU use a dense, strong tungsten tube with 0.002 in. walls?

Or a plating of molybdenum on a ceramic?

Or a ductile coat of chromium 0.005 in, thick that won't spall or crack when you bend it?

Such things are a practical reality, says Alloyd Research Corp., Watertown, Mass., which has developed a way to deposit such refractory metals in a vacuum. (It is similar to vacuum metallizing of thick coatings of aluminum and cadmium reported June 1 in Steel, p. 96.)

• The developer says the process offers many market possibilities.

Electronics and missile people stand to benefit first, Alloyd officials claim. Possibilities include plate elements for radio tubes and tubing for high temperature areas in missiles. (Why not wells for high temperature sensing devices?)

Alloyd also points out that seamless, high density tubing can be made in much larger sizes and lengths without much difficulty. (Dr. B. L. Averbach, chairman of the company and associate professor of metallurgy at Massachusetts Institute of Technology, says that to the best of his knowledge no one has yet made tungsten tubing as thin, dense, or pure.)

Pore-free chromium deposits on base metals offer another way to protect metals from corrosion. It may turn out to be a substitute for stainless, says Alloyd.

Tungsten or molybdenum deposits have also been made on graphite, a major possibility for rocket nozzles.

• Deposits are tight, ductile.

Chromium coatings 0.005 in thick on copper and steel show no signs of spalling or peeling, cracking, or flaking after extended bend testing. Such coatings completely protect a copper base for 64 hours in a 20 per cent nitric acid solution.

Alloyd's breakthrough came as an outgrowth of its efforts to make large quantities of high purity metals. Production is still in the pilot plant stage although processing costs are being accumulated and analyzed. Meanwhile, Alloyd would like to try coating a wider variety of parts or forming thin components for other firms who would like to test its process.

aint Use Cut O Per Cent

INT CONSUMPTION has been t 50 per cent by electrostatic ay painting at Kay-Mar Induses Inc., Cassopolis, Mich. The mpany's six month paint inveny was stretched to a year's supr. Another gain: About onerd of the floor space formerly red for painting was saved with Ransburg No. 2 process unit. y-Mar makes metal furniture.

Electrostatic painting provides a avier, more uniform application th metallic paints.

It's possible to use a higher metcontent in the coating. This cans a better finish is possible. lor changes are easier. Rejects, nich used to run 1.5 per cent, are wn to 0.25 per cent.

Important safety benefit: Genal housekeeping was improved so ach that insurance rates were duced. Fumes and paint odors are lessened.

Painting — Furniture legs and times go through four cleaning iges before painting. Then they're t on workholders spaced on 36 centers. A 600 ft overhead convor carries the work at 9 fpm.

Chairs are hung one to a fixture. her parts such as table legs, are puped—up to eight to a fixture. haller hardware pieces are puped in larger quantities on tree pe fixtures.

The parts rotate as they make a pp around the floor mounted ray unit. The surfaces get a mplete, uniform coating. The me reciprocator stroke length is ed on all parts except the bar pol—the stroke is lengthened for e longer legs.

After painting, parts move along to a gas fired oven to bake out 400° F for 8 minutes. Then ey're inspected, assembled, and cked.

The changeover to electrostatic inting was made with minimum ork interruption. The plant was used at Friday noon and opened e following Tuesday.

Sleeve Guards Thermocouple Against Thermal Shock

Silicon nitride shield lasts four times as long as those previously used on suction pyrometer. Instrument checks air temperature in the open hearth combustion zone



Pyrometer on water cooled probe checks open hearth temperatures. Inset: Double walled refractory tube protects thermocouple from radiant heat and thermal shock

NEED parts with high temperature stability and thermal shock resistance? Silicon nitride is being used in such applications.

Sleeves made of the material protect thermocouples from radiant heat in open hearth gas temperature measurement. They're made by Haynes Stellite Co., Kokomo, Ind., a division of Union Carbide Corp.

• A suction pyrometer, with a shielded thermocouple, measures temperatures in the open hearth combustion zone.

For efficient open hearth operation, air must be preheated to a high temperature before it enters the combustion zone. A thermocouple, mounted on the end of a water cooled probe, measures air temperature.

The air is drawn through a shield, consisting of two concentric tubes and made of refractory material. It protects the thermocouple against radiant heat from furnace walls and temperature fluctuation up to 2700° F in 90 seconds.

• A casting process turns out parts that last longer.

Shields made of silicon nitride last four times as long as those previously used. They're made by slip casting pure silicon metal, then sintering it in a nitrogen rich atmosphere. Parts can be made in a wide range of shapes and sizes.

The material is used in gas temperature measurement in other parts of the open hearth. In some cases, parts are exposed briefly to temperatures as high as 3200° F.

Optics Slash Machine Alignment Time

Instruments are used to make precise adjustments in the erection of large machine tools. The tooling has also helped boost the quality of machines

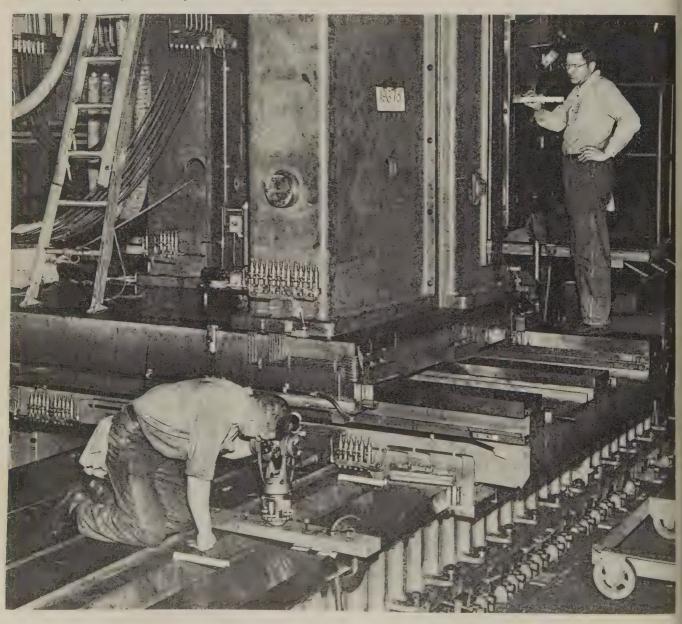
OPTICAL tooling saves 58 per cent of the time spent in leveling and aligning an Ingersoll, adjustable rail milling machine. It has cut 71 per cent off the time formerly needed to align a horizontal boring mill.

Better alignment also helps to speed machine installation in the customer's plant.

Massive beds, housings, and crossrails for the custom-built machines must be fitted on Ingersoll's assembly floor, knocked down, then reassembled at the customer's plant.

By using the Brunson optical tooling in original assembly, each section can be checked for hair-fine accuracies. Chances of overlooking conditions requiring corrective measures are greatly reduced. It means that the time needed for reassembly and alignment in the customer's plant is reduced to a minimum. The end result is a bet-

After the machine bed has been leveled, these men use optics to align the spindle sweep in relation to the bed



BY KENNETH FROMMER

Aethods Dept. ngersoll Milling Machine Co. ockford. III.

er machine that can produce parts o closer tolerances.

Procedure—Here's how machine beds are leveled and checked for traightness.

The transit is set up near the tenter of the assembled bed secions. A target, a small plastic ing with a crosspattern on it, is blaced on the bed. The operator iligns the transit crosshairs with he target pattern. Bed adjustment s made by raising or lowering jacks.

After the first adjustment is complete, the operator moves the target o successive points along the bed, epeating the alignment procedure

each time.

Optics has a solid advantage over ome other systems in making sucessive alignments. Once the tranit is set, it is never moved. Each point on the bed is determined with eference to the transit. In previous ystems, the second point was hecked against the first, the third gainst the second, and so on. Any error made in the setup was combounded on down the length of the bed.

To check bed straightness, the perator sets up a telescope at one end of the bed and the target at he other. After the target and he scope are aligned, the target s moved toward the scope. Any ateral aberration of the bed is imnediately apparent.

Another Plus—Optics also assures hat the machine housing is perpendicular to the bed.

The operator establishes a reference point with the scope, making he line of sight parallel with the machine bed. Then an opticalsquare transit is set up (it can be sighted from the side as well as the end) so the scope's line of sight ntersects the side lens. This puts he two instruments in direct align-

Sighting through the end of the optical square transit, the operator guides the machine adjustment until the two lines of sight, hence the two machine parts, form a 90 degree angle.

Stainless Steel Honeycombs Are Brazed in a Blanket

Rohr engineers are arranging silica insulated heating blankets around a welded steel envelope containing honeycomb part. Method is said to reduce processing time 70 per cent



AN ELECTRIC blanket technique is the key to a new way to braze stainless steel honeycombs. It promises faster production, greater economy, and flexibility.

Cycle time is cut from 23 hours (using a furnace) to 6 hours. Other advantages: Closer temperature control and improved brazes in complex

 A high temperature wire mesh heater blanketed by silica insulation furnishes the heat for brazing.

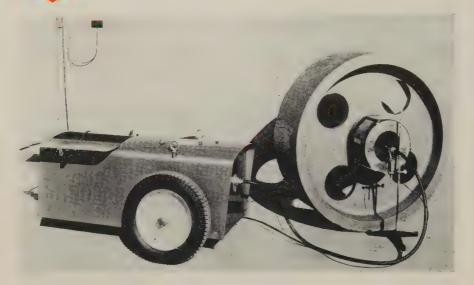
Rohr Aircraft Corp., Chula Vista, Calif., and Electrofilm, North Hollywood, Calif., collaborated to solve the problem. They sought to avoid the use of hefty, expensive furnaces and long production times which are necessary with older methods. (A large furnace may take 15 million Btu just to reach brazing temperature.)

To prevent oxidation during brazing, production panels are welded into a steel container or envelope filled with argon gas and exhausted during brazing. Each panel or sandwich has a honeycomb core sandwiched between layers of copper-lithium-silver brazing alloy and top and bottom skins.

For an effective bond, temperature must be held at 1650° F, then lowered to 1450°F before unloading. Normally, the load is again raised to 1000° F to age the stainless. The blanket technique responds comparatively fast to temperature adjustments because of its low mass.

"In August, we plan to use this method for limited production of stainless honeycomb structures for Convair's B-58 Hustler, a McDonnell fighter, and the B-70 chemical bomber," says Rohr.

This Cobalt 60 Carrier Is Controlled



From a Safe Area



The radioactive material is used for radiographic testing of steel castings, forgings, and weldments. Method has several advantages

HANDLING of cobalt 60 is easier, faster, and safer with the remotely controlled mobile carrier used at National Supply Co., Torrance, Calif.

The radioactive material is used to test steel forgings, castings, and weldments.

The mobile unit has a flexible projector tube in which a cobalt pill is guided to the point of use from a lead storage safe. The control unit is on the end of a long flexible metallic cable which is unreeled to a safe distance from the enclosed testing area.

The projector tube is supported in position after the radiographic film is on the part to be tested.

A manually operated crank and gear wheel on the control unit operate a rack type chain drive which propels the pill through tubing to the point of exposure.

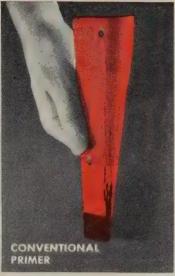
After exposure, the crank is used to draw the cobalt back into the lead storage safe. To increase safety, lights on the control unit indicate the position of the pill.

• AEC Specifications — National Supply built the outdoor enclosure to Atomic Energy Commission specifications. It has concrete walls 18 in. thick and 7 ft high. Large parts can be carried into the enclosure by truck through a gate, or by truck-crane over the wall.

The new equipment widens the practical use of radiographic examinations of large steel parts by National Supply. Two other radiation sources are used to check the quality of smaller steel parts.

RUSTMASTER





PROOF OF BETTER ADHESION—Rusted metal sheets were coated with primers and finish coats and exposed to weatherometer at 95 degrees and 95 per cent humidity for 300 hours. They were then subjected to severe bending in conical mandrel. Conventional primer cracked and broke away from surface. RUSTMASTER showed little sign of stress revealing far greater flexibility and adhesion.





PROOF OF BETTER ENDURANCE—In salt spray test, metal panels were coated with primers and finish coats and scribed to bare metal. Panels were then subjected to salt spray test for 500 hours. "Conventional" panel had severe blistering and under-film corrosion. RUSTMASTER restricted corrosion to scribed area, proving higher anti-corrosive qualities.





PROOF OF BETTER PROTECTION—Primers were applied to rusted metal panels and exposed to weatherometer test for 1600 hours. Scraping of both panels with knife blade showed that conventional primer pigment remained on the surface of the rust. RUSTMASTER vehicle and anti-corrosive pigments were bound into the rust, proving deeper penetration, more protection.

Penetrates rust faster and more thoroughly, dries faster, and gives better protection

Secret to the remarkable RUSTMASTER performance is a special surface wetting additive*. This additive gives the vehicle and pigment in RUSTMASTER superior penetrating power through rust which remains after average surface preparation.

This protective primer pierces tight rust layers and actually forces its way to the metal surface. Once there, it bonds firmly with the substrate, driving out corrosive moisture and air remaining in microscopic pores. This bonding action produces an extremely strong, flexible, durable finish.

The swift penetrating action of RUSTMASTER makes it fast-drying, too—waiting period before applying finish coat is now hours instead of days.

So successful have been exhaustive laboratory tests, that RUSTMASTER wetting agent is now being extensively field tested by the Lead Industries Association in formulas for Red Lead and Modified Red Lead Primers, and is included in experimental formulations recommended by the Association to industry for field testing.

Write on your company letterhead for complete information.

For most efficient protective maintenance systems, use RUSTMASTER with recommended Glidden finish coatings.

*Patent applied for

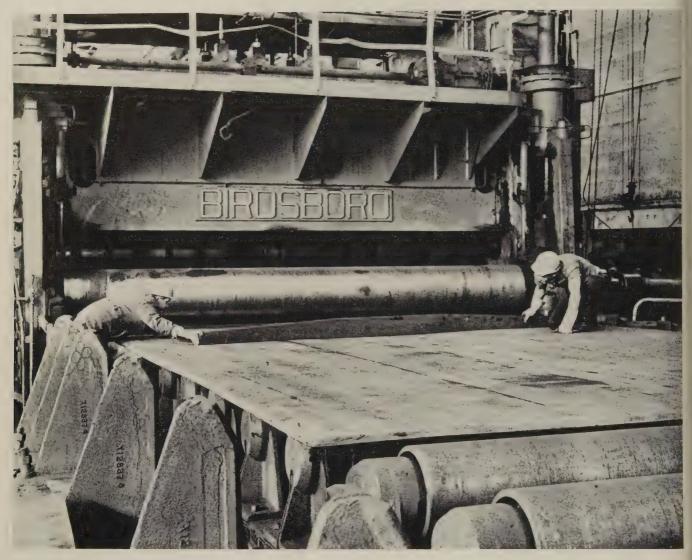


COATINGS FOR EVERY PURPOSE

The Glidden Company
INDUSTRIAL PAINT DIVISION
900 Union Commerce Building
Cleveland 14, Ohio

In Canada: The Glidden Company, Ltd., Toronto, Ontario

Big Levelers Make Plates Flat



Operator and helper check flatness of plate 200 in. wide before it enters leveler. Information is used to help determine right setting for work rolls

Closer tolerances being demanded show need for such equipment. Husky machines flatten four pieces per hour vs. one a day by previous methods

NEED steel plates flatter than those made to commercial tolerances? They're available, thanks to outsize roller levelers.

Two of the machines roll plates to almost perfect flatness at Lukens Steel Co., Coatesville, Pa. They're made by Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

• The trend in ordering is toward flatter plates. Fast, effective mechanical leveling is a must.

Plates can often be shipped directly from the rolling mill, but some must be heat treated. That causes distortion, which must be removed with mechanical equipment.

An increasing number of orders

call for tolerances closer than commercial standards; in some cases, almost perfect flatness is requested. But that isn't practicable, the company says. A maximum variation of $\frac{1}{8}$ in. in "dead flat" material is acceptable in the steel industry.

Usually, when plates are ordered from the mill, flatness is specified by standard commercial tolerances. In a plate $\frac{1}{2}$ in. thick and 108 in. long, a 1 in. level variation is often allowed.

• The machines are faster than

previously used leveling methods; labor and maintenance costs are lower.

Each leveler requires only an operator and one helper. Making three passes per plate, the two men can average four leveled plates an hour. By the previous method, it took up to 8 hours for one plate.

The machines are rugged and accurate. But they're no more difficult to maintain than other mill

equipment.

Every three months, rolls are removed for inspection. They're cleaned, polished, and replaced in less than 36 hours. Once a year, bearing and power train components are cleaned, inspected, and re-lubricated.

• The company uses two of the machines. One accommodates widths up to 160 in. The other takes plates as wide as 200 in.

The 200 in. unit has five upper and four lower work rolls. It handles mild steel plates up to $3\frac{1}{2}$ in. thick, armor plates up to 2 in. thick, and ductile alloys 2 to 3 in. thick, depending on yield strength.

The 160 in. leveler, with three upper and two lower work rolls, takes plates up to 13/4 in. thick.

Both machines turn out almost perfectly flat plates. The time and number of passes required depend on the thickness, composition, and original curvature.

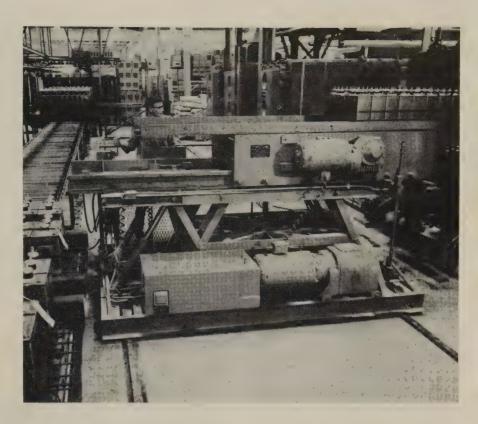
• Retractable work rolls give the larger unit more flexibility.

After each plate is heat treated, it is sent to the leveler on a roller feeder table. Accurate roll clearance levels the plate over its entire width. The finished piece is delivered to a 45 ft runout table.

Work rolls are supported by backup rolls to maintain the right clearance and reduce deflection. Space between upper and lower rolls is set for the level thickness of the plate by a mechanical screw drive.

All nine rolls are used on plates up to $1\frac{1}{2}$ in. thick. For heavier pieces, two upper and two lower rolls are withdrawn, doubling the distance between roll centers.

Roll speeds vary from $19\frac{1}{2}$ fpm, for the thickest plates, to $39\frac{1}{2}$ fpm when thinner plates are rolled. Minimum thickness: $\frac{1}{2}$ in. for clad steel, $\frac{5}{8}$ in. for carbon steel.



Semiautomatic unit (above) ends manual handling and replaces three men with one

Pallet Transporter Trims Manhour Costs

A SEMIAUTOMATIC pallet transporter has practically eliminated manual handling and made it possible to replace three men with one at the Bloomington, Ind., plant of Westinghouse Electric Corp.

It's being used to process capacitors. One operator serves three parallel banks of Stokes vacuum ovens and impregnators.

Capacitors arrive from the testing area and are banded together on steel pallets.

• Work Sequence—The transporter receives the pallets from a roller conveyor and moves them to an impregnator. While one pallet load is being processed, the unit con-

tinues to load or unload other pallets in the processing cycle.

Each of the three banks consists of two impregnators and one oven. In serving them, the transporter is automatically positioned at the various stations and levels after the required phase has been activated.

Electric and hydraulic controls power the unit in four directions: Traverse, lift, side shift, and roll-onroll-off.

Lateral movement capacity is 12,-000 lb. Lift capacity is 3000 lb. Lift speed is 3 ft per minute and traverse speed is 31 ft per minute. The unit is made by Special Products Div., Colson Corp., Somerville, Mass.

Scrap Handling—Problem or Profit?

Mechanized chip removal is faster and cleaner than manual methods. Conveyors often pay for themselves with reduced manpower and machine downtime. They save floor space and upgrade salvaged material. Choice of hinged pan conveyors, bucket elevators, or vibrating troughs depends on scrap volume and value and arrangement of machines

IS SCRAP handled in your plant by 20 men with baskets, or by one man and a conveyor system?

Automatic conveyors for scrap handling are gaining popularity in metalworking plants, says Walter G. Engler, vice president, Gifford-Wood Co., Hudson, N. Y.

Reasons: They reduce machine downtime and labor cost (both run high in manual processing). They take scrap out of production areas rapidly. They also permit improved efficiency in the use of plant space.

• Design depends on scrap volume, value, and the cost of manual processing.

In weighing benefits and initial cost of a conveyor system, each company must consider daily scrap output, its salvage value, and the type of equipment needed for manual or mechanical processing. Production time is lost when machines are shut down for cleaning. And labor isn't the only cost in manual handling; trucks, tote boxes, cranes, and slings must be used.

The conveyor system can be simple or complex, depending on the job. It may collect large amounts of scrap from each machine and deliver it to conveniently located containers. Or it may pick up scrap as it's produced, take it through several processing operations, and dump it in storage bins, railroad cars, or trucks.

Some machines turn out enough scrap to justify separate conveyor systems. Others, in rows or banks, can be adapted to discharge scrap into a common conveyor system.

• The mechanized system is effective in scrap processing and coolant reclamation.

Processing of scrap for resale is more efficient with a mechanized system. Equipment usually includes a high speed centrifuge for oil extraction, and crushing equipment that reduces scrap to uniform size. It may include a baler.

In some plants, the dollar value of reclaimed coolant justifies installation of a scrap handling system. Used coolant is collected in sumps under the conveyors, piped to clarification and filtering units, then returned to the supply tank for re-use.

• Three types of equipment are available: Hinged pan conveyors, bucket elevators, and oscillating troughs.

Conveyors can be adapted to any scrap handling problem, whether



Horizontal feeder conveyors catch chips as they fall from two lathes. Collecting conveyor (center) carries the chips to a loading chute

naterial movement is horizontal, vertical, or inclined.

The hinged pan conveyor, most popular for scrap handling, consists of pans, connected by hinge pins to matched strands of roller chain. All normal wear is restricted to rollers and bushings on the hinge pins.

Each convevor is self-contained. Head and tailshaft assemblies are mounted on a structural steel framework. The unit is usually installed in a trench under the floor.

When the convevor has an inclined section, steel cleats in the pans prevent scrap from sliding backward. Pan joints leave no opening during movement, and sharp edged scrap can't become wedged. Side flanges form a continuous wall and prevent scrap from spilling over.

Bucket elevators move material vertically, or up steep inclines. They're not often used to take scrap directly from machines. Most popular use: Elevation of scrap from collecting conveyors to storage bins, or transfer of material from one floor to another.

Oscillating, or vibrating trough conveyors move scrap horizontally. Regenerative force of coil springs helps the drive motor move material upward and forward.

 An automatic conveyor system can eliminate machine shutdowns for scrap removal.

Conveyors remove chips as fast as they fall from 60 in. grooving lathes at General Electric Co.'s Large Steam Turbine-Generator Dept. plant at Schenectady, N. Y.

Chips falling through the lathe bed are deflected by skirts into a horizontal, hinged pan conveyor that runs the length of the bed. They're carried to the tail end of the lathe and dumped into an inclined, hinged pan conveyor section that lifts them to a chute above two tote boxes. The chute is divided, so one box can be removed while the other is being loaded.

Formerly, an overhead crane lifted a metal cover from a tote box under the lathe, removed the box, set another in place, and replaced the cover. The operation required a 30 minute shutdown and had to be repeated two or three times a day.

• Mechanization often pays for itself in manhours saved.

An underfloor conveyor system saves 800 manhours a day at U. S. Hoffman Machinery Corp., Auburn, N. Y. All phases of scrap handling are mechanized. The system includes conveyors, coolant reclaiming units, chip crushers, and storage bins.

Chips and coolant from 40 machine tools are dumped into three hinged pan feeder conveyors. Hinged pan collectors and a pneumatic conveyor deliver the chips to storage bins or railroad cars.

Oil is collected in troughs under the conveyors, piped to a flotation unit, where it's reconditioned, and returned to the coolant supply tank. Heavy material settles out in a collecting unit; fines are "foamed out" in a special compartment. Foaming action also aerates the coolant and helps prevent it from becoming rancid.

• Conveyors provide faster scrap removal from production areas.

In a large midwestern plant, 5 tons of scrap an hour are collected from machines over a wide area.

Five oscillating conveyors, under the floor, collect scrap from machine tools. One of the five also serves as a collector, carrying scrap from the building. A short transfer conveyor deposits the scrap on an inclined oscillating conveyor, which dumps it in the hopper of a continuous bucket elevator. The scrap is then carried to a storage bin for carloading.

The system accommodates a wide range of loads. Example: At one point, about 250 lb per hour is fed into the system; at another point, input runs as high as 1250 lb per hour.

• Plant space can be used more efficiently when scrap handling is mechanized.

Usable space was increased 15 per cent with underfloor scrap conveyors in a new General Electric plant at Appliance Park, Louisville. Space formerly used for access lanes and bins is available for machines.

Chips from 54 punch presses are collected by seven feeder conveyors. They're removed from the building by a series of conveyors and stored in a chute for carloading.

Sheet Handling Problems Ended by Magnetic Rolls

Magnetic rolls have eliminated damage and maintenance problems in sheet handling at Rheem Mfg. Co. Inc., Linden, N. J.

A series of small diameter permanent magnet units (called Eriez Magna-Rolls) replaced belts formerly used at the discharge end of coating machines handling 16 to 26 gage sheets. The sheets are 44 x 72 in

The units convey sheets out of coating machines and feed them to wickets which carry them through an oven. The sheets come directly from lithographing presses.

The use of another material at this critical point was found to cause slippage, marred sheets, and a buildup of paint on the belts. Frequent cleaning was necessary.

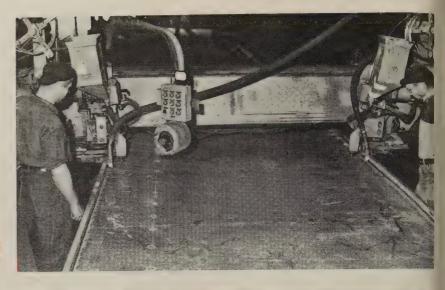
The new units carry the sheets securely, without risk of slippage and damage, and no paint accumulates on their hard steel surfaces.

Magna-Rolls are made by Eriez Mfg. Co., Erie, Pa.



PENCIL THIN QUARTZ LAMP gives as much light as the 1500 watt industrial lamp, says General Electric Co., Cleveland. A new principle called the iodine cycle eliminates blackening, permitting the space saving lamp to give 10 per cent more light during its life. The firm claims its Quartzline lamps will make possible more efficient commercial and industrial lighting

Machine Welds 100 ft Girder in 8 Hours



Same Job Used to Take 60 Hours



By cropping 52 hours from the time required to seamweld a representative workpiece, this two-headed machine shattered a production bottleneck. Part distortion also is cut

BOX girders for overhead traveling cranes used to be set up and then repositioned three times before operators could weld four seams that hold the webs to top and bottom cover plates.

Now the girders are set up and then turned over once.

Welders used to make two passes on each seam, the first with a 3/16 in. electrode, the second with a 5/16 in. This was done to minimize distortion.

Now a machine welds two seams in a single pass.

• A \$30,000 investment was recovered in less than a year.

At Morgan Engineering Co., Alliance, Ohio, engineers working on

an over-all cost reduction program put the spotlight on a welding bottleneck. The box girders, 50 to 120 ft long, were being held up an inordinate time while welders carefully laid four seamwelds, each the total length of the girder.

The girder was placed in a pair of 45 degree stands so the weld joint between the web and flange could be welded downhand. This meant that after each seamweld was completed, the girder had to be repositioned—a total of four setups. Positioning alone took the services of two men for 7 hours.

• The complete job now takes only an hour more than handling did. The girder is placed on its side under a tandem-head traveling welding machine built by Morton Mfg. Co., Muskegon Heights, Mich. Operators position the heads above the weld joint and start the machine. Traveling at a rate of 17 in. a minute, the two Linde heads lay down ³/₈ in. fillet welds on both seams. The machine uses submerged melt welding. Rollers riding the outside of the flange and the surface of the web guide the heads on their carriages to accommodate any variations in the part.

The machine has a track travel of 125 ft. Welding current is supplied by two Hobart motor-generator units (900 ampere, constant potential).

Other advantages of the system: The speed of welding and the uninterrupted arc minimize the total time of heat input and hold distortion to a minimum. Leadtime for the parts has been cut, and the shop has more hours available for other work

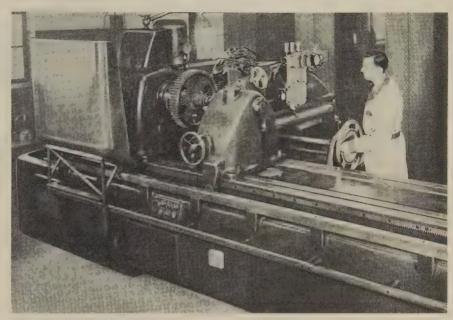
Method Enables Honing of Gears up to 200 in. OD

HARDENED spur and helical ears from 12 to 200 in. in diamter can be honed by a new methol developed by National Broach Machine Co.

The Red Ring gear honing procss improved the sound qualities of cears by removing nicks and burrs, making small tooth form corrections, and improving surface finish.

In operation, an abrasive impregnated, gearlike tool runs in mesh with the work gear at crossed-axes relationship. A motor turns he work gear which drives the tool while it is traversed back and forth across the face of the gear.

The honing tool spindle is supported by a tilt mounting. That arrangement permits either contant pressure (controlled work pressure) or zero backlash (fixed benter distance with predetermined pressure) honing methods to be seected by the user.



As applied to a prototype model (see illustration), the new process makes use of separate tool heads and feeding mechanisms that enable one large rotary machine to

perform both gear tooth shaving and gear tooth honing.

For more information, write National Broach & Machine Co., 5600 St. Jean Ave., Detroit 13, Mich.

Tape Controlled Tool Holds 0.0001 in. Tolerance

HERE is a numerically controlled, louble spindle, turning and boring mit that will machine inside and outside contours of hemispheres, ylinders, and other related parts within repeatable tolerances of plus or minus 0.0001 in.

The tape controlled machine reduces tooling costs, increases production, and shortens the over-all manufacturing cycle when compared with conventional machining methods. It was built co-operatively by Heald Machine Co. and Bendix Aviation Corp.

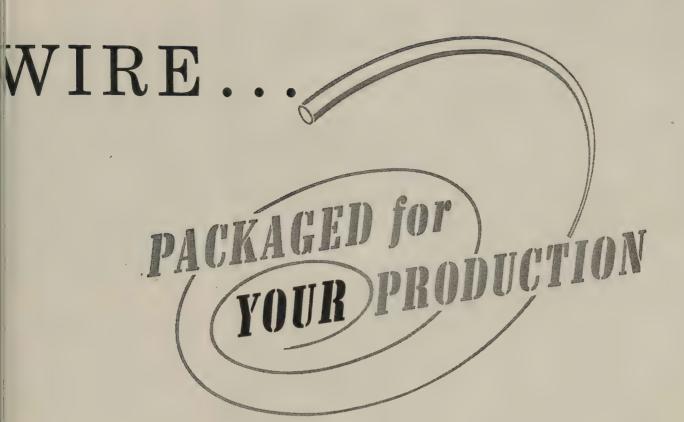
In operation, one spindle of the machine tool machines the outside diameter and the other spindle ma-

(Please turn to Page 108)



une 22, 1959





The CF&I Image represents the strength and dependability of all CF&I steel products. And for CF&I Steel Wire, this symbol reflects top quality. CF&I is the leader in designing packaging to reduce our customers' costs.

This is important to you! When you buy CF&I Steel Wire, you cut production costs—save time and money—by specifying the package that works most economically for you. You can choose a CF&I wire package that gives you the following special benefits:

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- simplified inventory control
- fast, economical in-plant handling
- continued cleanliness of the wire

CF&I Steel Wire is available in a wide variety of gages and finishes. Whatever your wire requirements, be sure to order from CF&I. All orders—from a coil to a carload—will arrive at your plant packaged for your production. Let our nearest sales office know your requirements.

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Steel-strapped Wooden Racks



Shaped Coils (1500-2500 lbs. capacity)



Stem-paks (500-700 lbs. capacity)

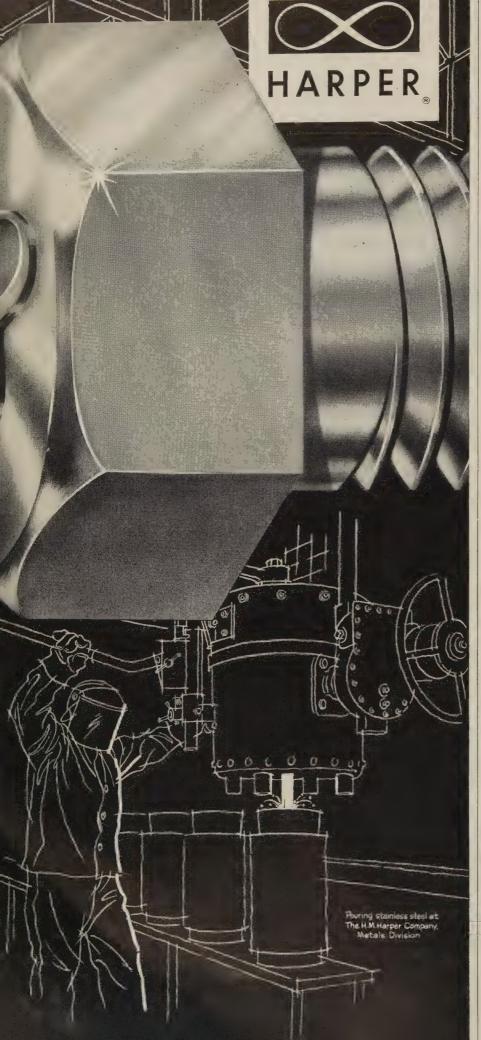


Returnable Spiders (2000-3000 lbs. capacity)



Steel-strapped Coils (100-600 lbs. capacity)

6626





chines the inside diameter of the part. Only one spindle at a time is operated on the machine.

The workpiece is clamped in a rotating fixture attached to the A single point tool, spindle. mounted on two hydraulically operated slides, is numerically controlled in two axes (longitudinal and transverse) to machine the desired part shape.

For more information, write Industrial Controls Section, Bendix Aviation Corp., 21820 Wyoming Ave., Detroit 37, Mich.

Rectifier Type Welder

THE TESTED features of a rising characteristic power source and the advantages of transformer-rectifier design are combined in the Aircomatic Fillerarc dc welder.

Specifically geared for use with gas shielded, metal arcwelding applications, the machine is suitable for both manual and automatic welding on all weldable metals. Its primary advantage is stepless adjustment of arc length and rate of rise for various wire diameters.

The welder is rated at 450 amperes, 40 volts, 100 per cent of duty

cycle.

For more information, write Air Reduction Sales Co., division of Air Reduction Co. Inc., 150 E. 42nd St., New York 17, N. Y.

Gear Speed Reducers Are Rated to 200 hp

HEAVY DUTY speed reduction is possible with two Philadelphia inline drives which are rated up to 200 hp. They feature high overall efficiencies of 94 to 97 per cent, depending on the number of reductions required.

Double, triple, and quadruple reductions are available in AGMA ratios up to 440 to 1. Right angle, spiral bevel attachments are available for mounting in any of eight drive positions at 45 degree incre-

Maximum durability and strength are built into each of the units. Final stage helical gearing is carburized and hardened, and gear



eth are precision ground, giving nportant advantages in increased ad-carrying capacity, reduced viration and noise, longer life, and pace savings.

For more information, write Phildelphia Gear Corp., 3620 G St., 'hiladelphia 34, Pa.

ndustrial Turntables

ASE of assembly and disassembly n the job is featured in a line of pw cost turntables for industrial ansfer applications. A two man rew can install the largest standard nit in less than ½ hour.



Built of reinforced standard structural steel members throughout, the urntables are available in sizes up to 16 ft in diameter, having load arrying capacities up to 3 tons.

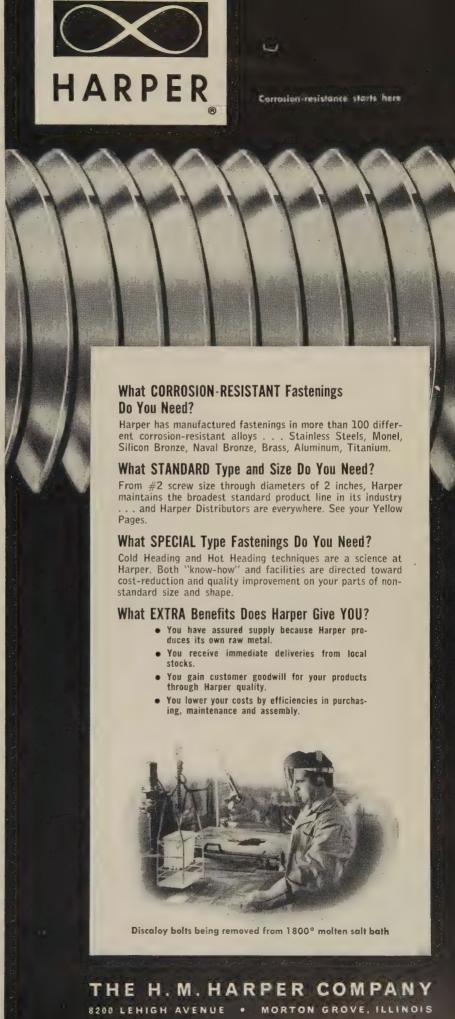
For more information, write An-

hor Steel & Conveyor Co., 6906 ingsley Ave., Dearborn, Mich.

Washer Cleans Bearings Without Disassembly

NTIFRICTION bearings up to 5 n. in diameter can be cleaned in he Model MC-4-1 bench-type ball nd roller bearing washer.

The unit uses the combined cleanng action of solvent and air,





under pressure. Cleaning is complete, nondestructive, and does not require removal of seals or shields. Average time required for each bearing is 30 seconds to 1 minute.

Bearings up to 14 in. in diameter may be spray washed inside the machine. The washer shield is transparent for visual inspection of cleaning.

For more information, write Bearing Inspection Inc., 3311 E. Gage Ave., Huntington Park, Calif.

Unit Checks Thickness Of Nearly Any Coating

FAST, accurate, and direct thickness readings of virtually any coating on any base material can be made with the Dermitron Model D-2 nondestructive coating thickness tester.

It measures metal coatings (such as plating) on a metal base; non-metallic coatings (such as paint, anodizing, porcelain) on metal base; and metal films on nonmetallic base (plastics, ceramics).

The instrument comes with four

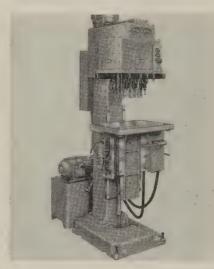


measuring probes for extra wide thickness ranges from thin to thick deposits, and requires only ½ in. circle-area for measurement. It can also be used for sorting and matching of metals and alloys. A right-angle probe is optional for measuring coatings and films on the inside diameters of pipes, bores in castings, and similar uses.

For more information, write Unit Process Assemblies Inc., 61 E. Fourth St., New York 3, N. Y.

Machine Drills or Taps 12 Holes Simultaneously

SHORT PRODUCTION runs can be made economical with the Deka-Drill, multiple spindle, drilling and tapping machine. Accessibility of controls and ease of setups keep downtime at a minimum.



Two models are available, a manual unit and a hydraulic machine. Both standard models are capable of drilling and tapping as many as 12 holes; more spindles can be ordered.

For more information, write Precision Tool & Mfg. Co., 1305 S. Laramie, Cicero, Ill.

Economy Degreasers Do Many Cleaning Tasks

A LINE of low priced (up to \$1000) degreasing machines can do a wide variety of metal cleaning jobs in your plant.

The degreasers use a trichlorethylene vapor solution to dissolve greases, oils, and waxes from all Superior spindle is major factor in accuracy of G&L horizontals

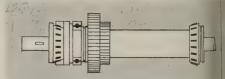
The ability of heavy-duty Giddings & Lewis horizontal boring, drilling, and milling machines to work to jigboring accuracies on many jobs is made possible by superior spindle construction—and the over-all rigidity and precision of the machines.

Giddings & Lewis spindles ride in ultra-precision Timken 0-33 bearings. These are premium-priced bearings superior to those used in any other horizontal spindle.

Surface finish on Giddings & Lewis spindles averages between two and three microinches. Runout normally measures .0001 to .0002 TIR.

As illustrated in the drawing, the driving gear is shifted close to the front spindle sleeve bearing for slow-speed operation. This minimizes torsional deflection on the spindle. When the heavy drive gear is disengaged for high-speed operation, it provides a flywheel effect, essential for use of carbide tools.

The spindle is accurately supported by the sleeve, ram, and take-



up collet when used in extended position for milling.

When you look at the power and beef that backs up this precision spindle construction, it is not hard to see why G&L horizontals provide exceptional accuracy and versatility.

These are some of the reasons why these machines carry the highest trade-in value and the lowest piecework rates of any horizontals available today.

Add to these features use of the building-block principle which gives you more machine for your dollar, and you'll see why G&L is your top buy.

symbol for

machining cost reduction



PRODUCTS and equipment

ferrous and nonferrous metals.

Thorough cleaning and drying of parts by vapor condensation and a hand spray rinse is done in seconds.

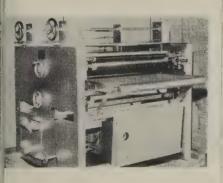
Occupying a minimum of floor space and weighing as little as 400 b, the Baronet degreasers will efficiently handle a work load capacity of 1600 to 2000 lb an hour, depending on the size of the unit. Interior lengths range from 3 to 8 t, while inside depth and width of each is 24 by 24 in.

For more information, write Bar-, on Industries, 241 W. Avenue 26, Los Angeles 31, Calif.

Unit Roller Coats Metal Twice in a Single Pass

VARYING amounts of varnish, slue, wax, or other coating materials can be applied to the top and bottom surfaces of metal twice in a single pass with the Two-Stage Twin roller coater.

Two double coating assemblies are located on 18 in. centers. Flat tock is fed into the unit by conveyor. A second conveyor moves it rom the first coating section to the next. Variable speed drive controls he feed rate. A circulating pumping unit regulates the amount of oating material to the crotches of he upper rolls and the feed pans in the lower rolls.



The front doctor rolls are quipped with micrometer type and knob adjustments for precion metering. Viscosity is controlled by an immersion heater in the supply tank which keeps material at com temperature at all times.

For more information, write Inion Tool Corp., Warsaw, Ind.

(Please turn to Page 116)

Stuart's Hi-D cleans, lubricates as it cools, inhibits rust even at 60:1



If you do a lot of grinding, you want a highly detergent grinding fluid, don't you? And, if that's what you are using, your greatest opportunity to

save lies in the elimination of machine trouble. Here's how Hi-D can help.

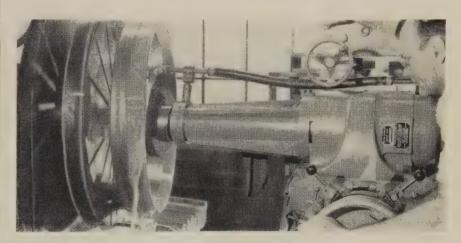
This new compound will reduce downtime for machine maintenance because it does not wash lube oil from way surfaces or remove paint. It will reduce downtime for wheel dressing because it keeps wheels free-cutting. And, it will reduce downtime for cleaning the machine because it does not leave crystalline-deposits on the chuck or table.

In a flotation-type filtering system, Hi-D has proved its ability to float the "fines"

...and, in an ordinary sump, it has shown excellent chip-settling qualities.

Even for hogging cuts on a surface grinder, Hi-D has all the detergency needed to keep your wheels open, yet does not make them act too soft. You don't have to go into a big wheel program to use it. Mixed at 60:1 for grinding, it slashes lubrication costs, inhibits rust, and remains stable even after picking up tramp oil.

You can standardize more effectively and simplify inventory, too, because Stuart's Hi-D at 40:1 is an excellent cutting compound—has proved its effectiveness on threaders, lathes, and other cutter-type operations. It handles a wider range of operations than most synthetic compounds because it lubricates as it cools.



Proof of performance—Grinding wheels stayed clean and free-cutting 3 times longer when Stuart's Hi-D was used in this universal gap grinder and other machines at The Torrington Co., Bantam Bearing Division, South Bend, Indiana. This precision bearing manufacturer found it to be the one best fluid for the

average condition on 87 grinders. It reduced grinding fluid costs by 1/3 because it is more effective at 60:1 than the former, more expensive lubricant was at 40:1. Phone your Stuart representative for information on our introductory Trial Drum Guarantee.

Stuart Productive Lubrication

D. A. STUART OIL CO., LIMITED

2727 South Troy Street, Chicago 23, Illinois • Phone: Bishop 7-7100 CANADIAN D. A. STUART OIL CO., LIMITED, P. O. Box 430, 43 Upton Road, Scarborough, Ontario, Canada

First Precision Component in the Run... or Last

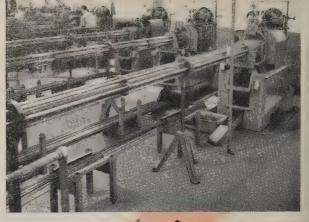
Acme-Gridleys

Sustain Exacting

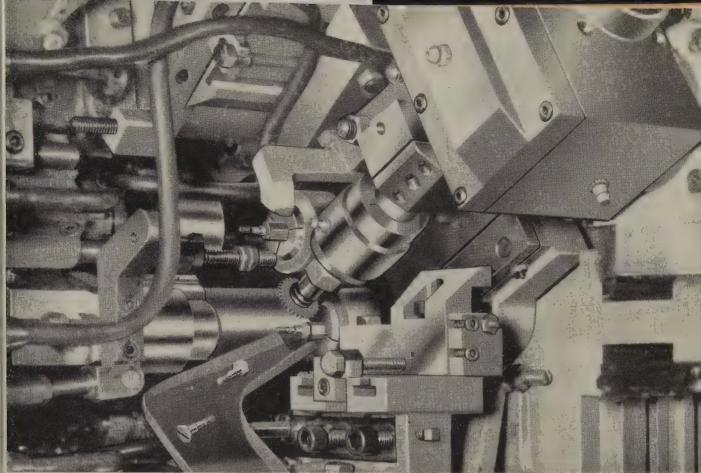
Tolerances for

IBM's

"New Look"





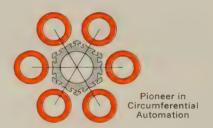


Close-up of rear side of tooling zone showing slotting attachment in the 5th position.

At IBM's modern Lexington, Kentucky plant, twenty Acme-Gridley ½6" six spindle automatics are mass-producing the small to miniature parts for their sleek new electric typewriter. They help to provide IBM with greater sustained accuracy at lower cost than other comparable machines.

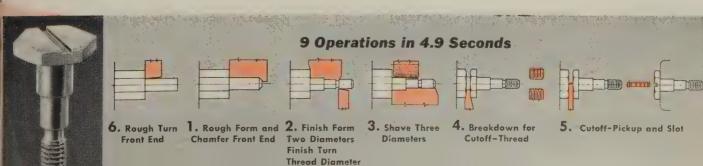
The precision components are held to closely controlled tolerances of .0005 t.i.r. These limits apply to the last piece in the run as well as the first, and consistent accuracy is maintained with less machine adjustment than ever before realized. Sustaining the closely controlled tolerances of these parts completely minimizes costly rejections during exhaustive quality control checks of the completed units. Inspection time is greatly reduced.

IBM has also found that the wide-open tooling zone of their $\frac{1}{16}$ 'Acme-Gridleys permits much greater latitude in tooling up for complicated operations performed in a single set-up. This, plus the lasting accuracy of direct camming and the flexibility of independently operated toolslides, makes this newest member of the Acme-Gridley family a profitable asset to IBM's modern production line. Write for Bulletin MRA-58.



Acme The National Acme Company 189 E. 131st Street Cleveland 8. Ohio

Sales Offices: Newark 2, N.J.; Chicago 6, III.; Detroit 27, Mich.





Titerature .

Write directly to the company for a copy

Metal Cleaning Data

"Your Guide to Effective, Economical Metal Cleaning" is a folder containing a series of charts. It covers the task of selecting the correct cleaning method and chemical for the various metals and soils encountered in metalworking and finishing. Magnus Chemical Co., S. South Avenue, Garwood, N. J.

Corrosion-Resistant Fasteners

A 24 page booklet tabulates commonly used metals to show their approximate physical and mechanical properties and their suitability for manufacturing applications. H. M. Harper Co., 8200 Lehigh Ave., Morton Grove, Ill.

Finishes for Aluminum

A 28 page handbook covers five major types of finishing operations, and explains their advantages, disadvantages, and costs. Dept. PRD-9, Reynolds Metals Co., Box 2346, Richmond 18, Va.

Tooling Services Directory

The 1959 Directory of Special Tooling Services lists more than 1000 contract tool and die plants in the U. S. and Canada and the categories of service they offer. National Tool & Die Manufacturers Association, 581 Fifth Ave., New York 17, N. Y.

Keys to Bearing Fits

An 8 page manual contains instructions on preventing premature bearing failures and off-schedule removals; procedures on obtaining accurate bearing fits easily and economically; and engineering data assuring perfect bearing fits on all antifriction bearings. Bearing Inspection Inc., 3311 E. Gage Ave., Huntington Park, Calif

When to Replace Equipment

A brochure gives details on how replacement of old machines paid off for six manufacturers, and explains when a replacement works out to the user's best advantage productionwise and investmentwise. Heald Machine Co., 10 New Bond St., Worcester 6, Mass.

Packaging Guide

"Better Ways to Package, Unitize and Ship," 48 pages, contains ideas for improving packaging and shipping methods. It also shows a complete line of strapping, tools, and equipment. Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill.

Metal Powder Parts Sealer

A booklet describes Sinter-Seal, a product which makes metal powder parts pressuretight and nonabsorbing. National Sinter-Seal Co., 659 Seneca Industrial Center, Buffalo 10, N. Y.

ELLWOOD CITY • PENNSYLVANIA

Cherry Rivet Division • Santa Ana, California

Engineered Fasteners Division

In Canada: Parmenter & Bulloch Manufacturing Company, Limited, Gananoque, Ontario

Market Outlook

June 22, 1959

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Industry Determined to Hold Price Line

STEELMAKERS will have to give the union something if they expect David J. McDonald to sign a new contract, but they're hoping for a settlement that won't require higher prices.

Although they've stated time and again that wages and benefits can't be increased unless prices are raised, industry negotiators know there's another answer: Getting something in return for high wages. Examples: Increased output, more efficiency, less waste.

About the most they can hope for in terms of higher productivity is an annual increase of 2.3 per cent (the national average over a long period). Applying that to the current hourly wage rate of \$3.06 would mean an increase of 7 cents an hour. But industry would argue that labor would be getting the benefits of other input factors (money, materials, and machines).

compromise likely— Since both sides are on the spot, neither can expect total victory. Mr. McDonald feels he has to produce something if he's to disarm the USW rebels. Industry negotiators have to stand fast because they're battling inflation and the inroads of foreign steel. Possible solution: Concessions by the USW on operating procedures in exchange for a wage increase.

PRICES MAY HOLD— Although Mr. McDonald has rejected the industry's eight-point program aimed at improving efficiency, he may agree to some contract changes that would enable steelmakers to raise wages without increasing their over-all employment costs. Elimination of some featherbedding practices, for example, could result in savings to the mills sufficient to offset a small wage increase.

MILLS PREPARE FOR STRIKE—Because union and management negotiators are farther apart than ever after six weeks at the bargaining table, steelmakers are getting set for a walkout. They've already taken the initial step of cleaning out raw material pipelines. Within a few days, they'll start banking furnaces.

INVENTORIES IN GOOD SHAPE—In general, consumers seem to be satisfied with their inventories. Automakers are in a particularly strong position because they've taken in enough steel to wind up production of the 1959 models and get started on next year's. They're under no pressure

from dealers because new car inventories are at an all-time high (more than 909,000).

SCRAP PRICES CLIMB— Even though steel-makers have shut off scrap deliveries for June (they don't want to take in anything they can't use before the strike deadline), prices are rising. STEEL's composite on the No. 1 heavy melting grade advanced \$1 last week to \$36.50 a ton. In the East, export demand is bolstering the market. Elsewhere, dealers are bullish because:

1. If there's no strike, they assume that steel-making will continue at a fairly high level in July and that mills will need more scrap.

2. If there is a strike, they believe that steel-makers will reline many of their blast furnaces before resuming production. With hot metal output curtailed, they'll have to use more scrap.

PRODUCTION TAPERS OFF—Last week, steel-makers operated their furnaces at 92.5 per cent of capacity. Production was about 2,619,000 net tons of steel for ingots and castings.

WHERE TO FIND MARKETS & PRICES

	News	Prices		News	Prices
Bors, Merchant	125	131	Ores		137
Reinforcing .		132	Pig Iron	147	136
Boiler Tubes		134	Piling	124	131
Canada		*	Plating Material		147
Clad Steel		135	Prestressed		1-47
Coke		137	Strand		*
Coal Chemicals.		137	Price Indexes		129
Charts:			Producers' Key.	132	
Finished Steel	128	129	R.R. Materials.	147	134
Scrap Prices.		141	Refractories		137
Comparisons		129	Scrap	140	142
Contracts Placed	148		Semifinished .	128	131
Contracts Pend.	148		Service Centers	127	136
Electrodes		137	Sheets	123	132
Fasteners		134	Silicon Steel		133
Ferroalloys		138	Stainless Steel.	127	135
Fluorspar		137	Strip	123	133
Footnotes		134	Structurals	147	131
Imported Steel	124	137	Tin Mill Prod		133
Ingot Rates	128		Tool Steel	123	135
Metal Powder.		137	Tubular Goods.	125	135
Nonferrous Met.	144	146	Wire	124	133

^{*}Current prices were published in the June 15 issue and will appear in subsequent issues.

This is a picture of

It's nothing you can use in your plant tomorrow — or even next year. But Allis-Chalmers is working on it *now* to meet the needs of industry in the future.

Fundamental research of materials, processes and equipment is an important part of the A-C contribution to industry. This enables product design engineers to make existing products even better, to create a continuous flow of new equipment, to help industry achieve new efficiencies and economies.

Research and development are only two reasons why A-C is recognized as a leader in supplying both electrical and mechanical equipment for industry. Single-source availability of "teamed" equipment, maximum engineering help and outstanding service facilities are others.

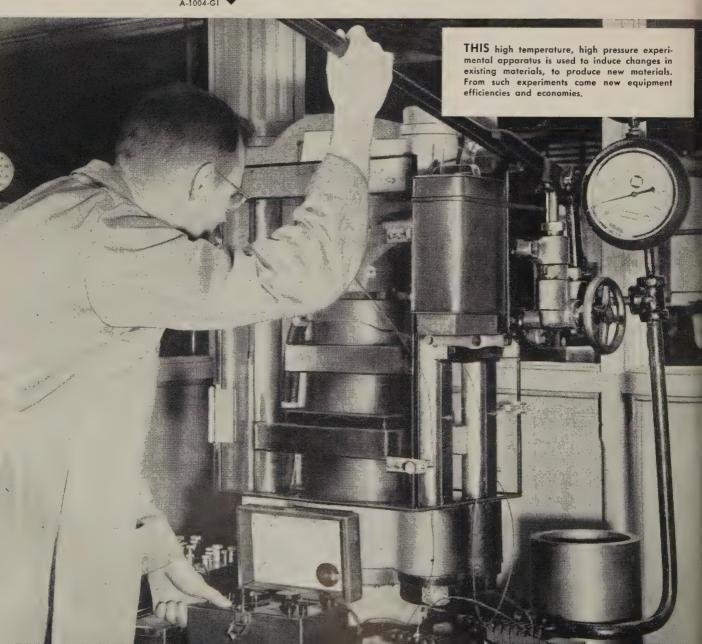
Talk to your A-C representative or distributor soon about your requirements. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.

a <u>new</u> product



Products for industry: Electrical Generation, Distribution and Utilization Equipment; Pumps; Compressors; Mechanical Power Transmission Equipment; Processing Machinery; Motors and Control; Water Conditioning Systems, plus Materials Handling Equipment.





Extrusion Sales Up; Uses Increase

Shipments Way Up in '59

(in tons)

	Aluminum ¹	Magnesium ²
1959	464,000 ³	5950 ⁴
1958	371,561	4955
1957	353,365	5750
1956	351,819	7077
1955	341,190	6255
1954	224,816	4537



An I-beam mullion being extruded by Chase Brass & Copper Co.

Sources: ¹Bureau of the Census.

²Bureau of Mines.

³Estimated by STEEL.

²Estimated by Dow Chemical Co.

A MAJOR motor manufacturer was commissioned to build a unit with an aluminum stator for a nighly specialized application. Design engineers huddled and decided to substitute an extrusion for the briginal specifications. Reasons: Extrusions would overcome a porosity problem, save weight since the stator wall thickness could be reduced, and require less machining.

Extrusion is one of the fastest growing major fabricating techniques. Enthusiasts cite other advantages: The intricate shapes and close tolerances possible, reduction in finishing operations, and frequently lower end costs (although initial charges are usually higher).

Aluminum—The light metal coninues to lead the pack in volume and new applications. Producers ay extrusions are the fastest growing mill product in the aluminum table. Industry shipments are expected to shoot up 25 per cent this trear (see table).

The biggest use will continue to re in the architectural field. Sevral skyscrapers now going up, like the Time Inc. building in New York, take large tonnages of extruded aluminum for vertical mullions, window frames, and other functional-decorative uses. Building and store fronts, railings, and elevators are employing more and more extrusions. In the home, you'll notice more extruded aluminum for storm windows and screens, window frames, doors, and trim.

The auto market is a large user, principally for trim. Car designers say extrusions are also gaining popularity in functional applications. Aircraft take large amounts for structural and trim uses. Extruded tubing sales to furniture makers is an important market. The electrical field is expanding due to the burst in popularity of aluminum conduit and the potential of extruded structurals for substations and transmission towers.

Large aluminum shapes are being used for transportation equipment, building, and architectural sections, structural members for aircraft and missiles, bus bars for electrical distribution systems, and bridge structurals.

Even with the heavy sales increase this year, cutthroat pricing is still a problem. Reason: Too much capacity makes the industry fiercely competitive. Official counts list about 100 firms scratching for business, but industry sources believe small operators may boost the figure another 50 to 75.

• Magnesium—Buyers are stepping up purchases for use in aircraft and missiles, luggage, material handling equipment, ladders, welding rods, water heaters, electronic parts, and military vehicles.

Recently developed precision extrusions offer tolerances otherwise obtainable only by machining and a series requiring no stress relief after welding.

Prices of commercial grade extrusions have been reduced an average of 12 per cent in the last year.

• Copper—Extrusions made from this metal and its alloys account for under 5 per cent of all copper mill products sold. Yet, percentagewise, mills say this is one of their fastest

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growing markets. Sales are rising 15 to 20 per cent over last year's (some gains run up to 45 per cent).

Major uses: 1. Architectural (exterior building panels, window and door frames and channels, stairway and balcony railings, entrances, store showcases, and decorative shapes). Makers believe there's a trend back to architectural bronze in many applications, mainly at the expense of aluminum and stainless steel. The John Hancock Mutual Life Insurance Co. building going up in San Francisco is taking 150,000 lb of bronze extrusions, reports

Chase Brass & Copper Co. 2. Building hardware such as lock bodies and sliding door panels. 3. Electrical components like generator windings, bus bar conductors, switch gear assemblies. (One of the best potentials: Complicated electronic parts requiring metals with good electrical conductivity.) 4. Automotive fittings.

Miscellaneous applications run the gamut from lamp shades and watch cases to piano parts and handbag trim. Phelps Dodge Corp. made 400 tons of copper extrusions for the electromagnets in the giant Brookhaven atom smasher.

- Nickel—Demand for nickel base alloy extrusions has gained over the last several years. Most shapes are shipped in tubular form for corrosion and heat resistant applications in the chemical, petroleum, and aviation fields.
- Titanium—Extrusions haven't become a major product here. But uses are growing. The four producers ship the bulk of their shapes to the aircraft industry for use in jet engines, hydraulic lines, and airframes (ribs, stiffeners). Example: North American's A3J Navy attack aircraft uses 58 extruded titanium shapes in about 100 different parts. Designers of the B-70 (Mach 3 bomber) reportedly are interested in titanium extrusions for airframe components.

Civilian uses are growing, particularly in chemical process equipment like heat exchangers, tubing, piping, and fittings. One utility company is testing condenser tubing in areas with corrosion problems.

• Lead—Nearly 1 million tons of lead were consumed in this country last year. About 10 per cent was extruded.

All lead sheathing for power and telephone cables is extruded. This market sunk from 134,000 tons in 1956 to 75,000 tons last year. A continuous extrusion process is being investigated as a means of recapturing part of this market.

All lead pipe and tubing are extruded. Major uses: Piping in chemical plants, plumbing, and water service pipe.

All wire solder is extruded. Principal users: Electrical industry, home owners. Lead cores for rifle ammunition are generally extruded.

• Zinc—Many people think zinc extrusions may be on the comeback. Hot extrusions, which went out after World War II, are starting to appear again in such areas as door saddles.

Market planners mention possibilities in terrazzo strip for the building industry, grilles for autos. Say zinc people: If zinc competes with screw machine products, extruding would offer the best fabrication method because of its ready adaptability to finishing.

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Savings effected by the new Magor Air Dump Cars will write off your entire dump car investment within a few years.



MAGOR CAR CORPORATION

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Tool Steel . . .

Tool Steel Prices, Page 135

Tool steel producers are operating near capacity, with the best volume of business they've had in about three years. Barring adverse developments, shipments in June should equal or exceed last month's.

Inventory building is partly responsible for the boom, but there's less stockpiling of tool steel than of other steel products. Reason: Many smaller producers won't be shut down by a July 1 strike of steelworkers.

Makers of tool steels are encouraged by prospects of continued strong demand. Many customers who bought for inventory two or three months ago are coming back into the market. They have used much of the material originally ordered for stock.

Even if a strike is avoided, next month's business will be slow since many consumers will close their plants for vacations.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 132 & 133

CONSUMERS are pressing for all the sheet tonnage they can get in before the steel strike deadline June 30. Most of them have already placed substantial orders for third quarter. If there's no steel strike, there may be cutbacks and some cancellations, but it's doubtful there will be much wiping out of tonnage. The over-all outlook for late summer and early fall consumption is regarded as good.

In general, sheetmakers are two to three weeks behind schedule on delivery of cold-rolled sheets. At best, they're five days late; at worst, they're three weeks off the pace. Delays are due to slowdowns and shortages of trucks. It's thought labor and transportation problems may become more acute before this

month is out.

• High-Level Production—Barring a strike, July output should be close to capacity. The carryover from June will be sizable, and by the time the labor situation is clarified it may be too late to cancel July tonnage. Some mills are sold out for August, but part of the tonnage for that month will undoubtedly be canceled or held up if there's no strike. One Pittsburgh mill esti-

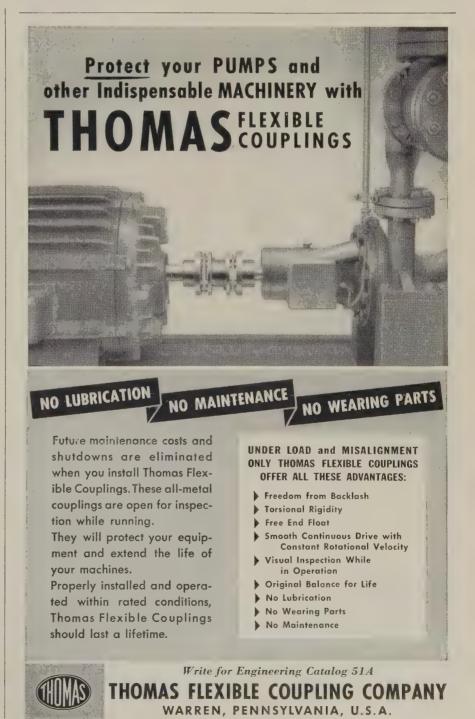
mates it may lose 15 per cent of its August book. Another thinks cancellations will be few because consumption is rising, and many users haven't been able to increase their inventories.

Automakers are ordering slowly for August and September, evidently because they took in so much steel during the first half to protect themselves against a strike. Now it's believed they're concerned about the size of dealers' new car inventories (estimated at more than 900,000). "They're not taking a full buy for August," a sales executive comments, "but that's all right with us. We'll

be able to take care of the smaller fellows whose inventories aren't big enough to sustain production.

• Coated Sheets Tight—Galvanized remain the tightest of the flat-rolled products. Producers will operate at capacity throughout the third quarter and may do as well in the fourth, Automotive applications are increasing, and there's been no letup in demand from building contractors and service centers.

Some consumers of zinc-coated sheets will not get delivery on substantial tonnage ordered for shipment by June 30. More mills have



June 22, 1959

lost ground on scheduled promises this month, and some are nearly four weeks behind.

Other grades of flat-rolled lag behind shipment schedules, but this situation is most serious in zinccoated specialties.

Wire . . .

Wire Prices, Pages 133 & 134

Although users of manufacturers' wire and cold heading grades are striving for an inventory that will carry them six weeks to two months,

some may not be able to hit that target by June 30 because of heavier consumption than they had previously anticipated.

Carryover by mills likely to be closed down by a strike will not be heavy. In any event, wire production will not be completely halted since a substantial portion of capacity will not be affected.

Imports are estimated to be cutting into domestic volume to the extent of 10 per cent a month. This proportion is likely to increase should there be a strike.



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Imported Steel Advancing In Southwest Market

Except for nails, prices on foreign steel continue to rise in the south-western market. Two foreign mill depots at Houston raised their prices \$5 and \$7 a ton within a week. Since February, prices on imported angles have been advanced \$17.20 a ton.

All foreign mills represented in the Houston area are on strict allocation, except for wide flange sections. Foreign plates and bars are in tighter supply. As a general thing, deliveries average from four to six months.

Buffalo Steel Corp., Tonawanda, N. Y., is importing used steel rail for rerolling into other steel products. It has placed orders for 20,000 tons of used rails, the material to come from England, Ireland, and France.

Prices on imported steel delivered to Great Lakes ports are tightening noticeably. Previously brokers paid transportation to buyers' plants from docks. Now the price sheets simply say "delivered at docks." It means that foreign sellers are no longer paying delivery charges from dock to consuming plant.

Here are some prices on imported products quoted at Detroit: Hotrolled plates, 48 by 120 in., in 250 ton lots, \$6.40; hot-rolled sheets, 10,000 lb coils, 36 in. wide, 7 to 16 gage, \$6.30 to \$6.85, depending on gage.

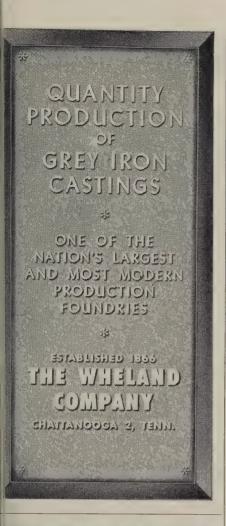
Plates . . .

Plate Prices, Page 131

If there's a steel strike come July 1, platemakers will probably average two to three weeks arrearages. But if a strike is averted, the mills should become current on their commitments fairly early.

In general, market prospects are promising, but adverse seasonal influences must be taken into account. Also, should there be no strike, there may be some order cutbacks and cancellations.

An encouraging aspect is a quickening of interest by the oil, gas, and chemical industries. Demand from these areas of consumption has been lagging. Also, there is some improvement in specifications for large industrial and marine boiler instal-





lations. But demand for the socalled "package" lines, such as boilers for office buildings and dry cleaning establishments, is still spotty. Shipwork is also on the slow side.

Steel Bars . . .

Bar Prices, Page 131

Some merchant bar sellers can still enter tonnage on their books for shipment in July (assuming no steel strike). This applies to hot, alloy, and cold drawn bars. Tonnage isn't available in all sizes, and there are some exceptions where the material requires special treatment.

The situation indicates that demand for the third quarter is only moderate, with buyers inclined to "wait and see" what happens as the result of the steel labor negotiations. The position is also borne out by the spotty bookings for August shipment. But buyers continue to press the mills for all the tonnage promised them for delivery this month.

New England users' inventories will average 45 to 60 days by the end of June. In some cases, stocks will be heavier. A few district consumers are placing third quarter orders with a view to obtaining priority in rolling schedules when work is resumed after the expected strike. If there is no walkout, many will not need the bars they've ordered until September or October.

Tubular Goods . . .

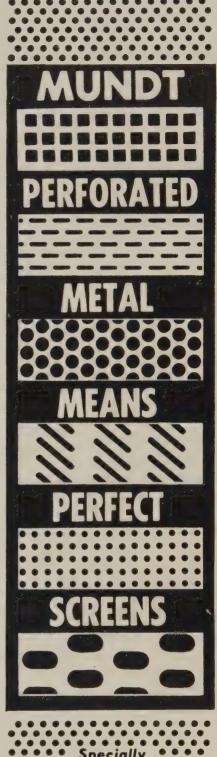
Tubular Goods Prices, Page 135

Oil country goods producers are a week or two behind on deliveries, mainly because of inevitable breakdowns after weeks of capacity operation.

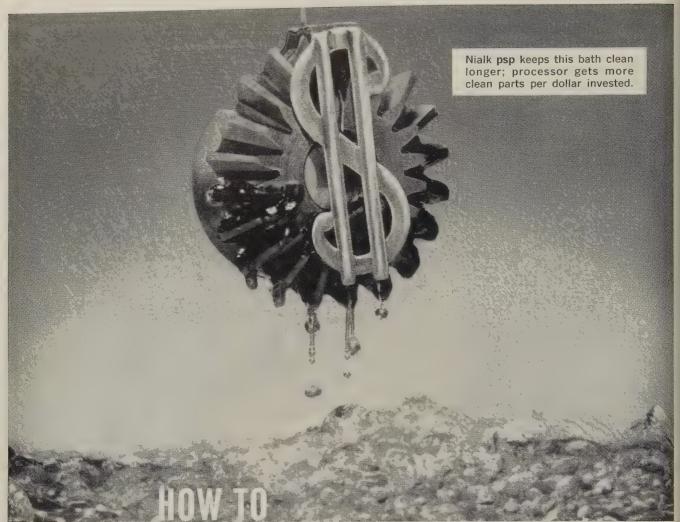
June shipments of tubing are on a par with last month's. Drill pipe entries in order books have picked up noticeably. Some producers are turning out about as much tonnage as they can make.

Downriver stocks of most products at mill depots have been nearly cleaned out, but the oil companies have built big inventories.

Standard pipe shipments are running well ahead of those last month. One producer closed his first half order book on seamless pipe at the end of May, and shut off buttweld entries ten days ago. Consump-







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tion has increased so rapidly that users haven't been able to accumulate large stocks.

Spurred by the Supreme Court's reversal of the Memphis decision on natural gas transmission rates, demand for trunk line pipe remains strong. If there's no steel strike, producers will operate at capacity throughout the third quarter.

Stainless Steel . . .

Stainless Steel Prices, Page 135

Stainless steel producers are running about 75 per cent of capacity on sheets and plates. Deliveries are close to schedule. Inventory building isn't heavy because roughly 65 per cent of the tonnage moves through service centers.

Prices are firm. The most recent brice action was by Republic Steel Corp. (In April it reduced quotations on stainless rerolling billets and slabs.) Its new schedule (Steel, Apr. 27, p. 135) showed reductions ranging from 2.75 cents per pound on the 410 grade to 4.25 cents on types 310 and 317.

Distributors . .

Prices, Page 136

Steel service centers are winding up what will be their best month o far this year. They have oooked substantial tonnages in all najor lines. Should the mills be truck July 1, they probably will be onfronted with heavier demand.

Some consumers are beginning to ret concerned about their invenories. They are picking up tonages from various sources to bolter their reserves.

Most distributors have had inruiries for mill size tonnages, but hey are being turned down. The ttitude is that their own invenories must be reserved for service o regular customers and not raided or the benefit of big buyers. Actually some doubt if many users vould pay premium prices for adtitional supplies at this time.

Items in biggest demand are galanized sheets, hot and cold rolled heets, structurals, and bars. Some oles are beginning to develop in listributors' stocks, and few of them an be plugged prior to July 1. Distributors and consumers are in he same boat insofar as getting hill shipments.

Chicago steel service centers have

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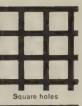




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adopted the same net pricing procedure that was announced recently in Pittsburgh and Cleveland.

Semifinished Steel . . .

Semifinished Prices, Page 131

If a steel strike continues to threaten, mills are expected to pour ingots as long as they can. The reason: They want to have the best possible inventory of semifinished steel when operations resume.

Inquiry indicates that the afterstrike startup won't be handicapped by lack of semifinished.

May Steel Production Is Greatest for Any Month

For three straight months, production of steel for ingots and castings has exceeded II million net tons.

A new monthly record was established in May, when the nation's furnaces poured 11,600,000 net tons, reports the American Iron & Steel Institute. The previous all-time monthly peak was reached in March at 11,567,745 tons.

April output was 11,281,290 tons. Production in the first five months of the year also was record breaking, totaling 53,369,988 tons, up 74 per cent from the 30,625,007 tons poured in the corresponding period of 1958. The previous record for the first five months in any year was in 1956 at 52.9 million tons.

Barring an unlikely collapse in

production this month, a first half record output is certain. To beat the unbroken record of 62.6 million tons set in 1956, it will be necessary for the mills to pour only a little more than 9 million tons in June.

According to the institute's index of steelmaking, May output was 163.1 in terms of average production in 1947-49. That compared

with 163.9 during April, and 88.6 in May a year ago. The index for the first five months was 154.0 vs. 88.4 last year.

Based on Jan. 1, 1959 capacity of 147,633,670 net tons, the industry operated at an average of 92.5 per cent in May vs. 93 per cent in April. The rate was 87.4 per cent in May, 1958, when capacity was 140,742,570 tons.

Steel Ingot Production-May, 1959

OPEN HEARTH Period (Net tons) 1959	BESSEMER (Net tons)	OXYGEN PROCESS (Net tons)	ELECTRIC (Net tons)	TOTAL (Net tons)	Per cent of capacity
January 8,280,985	120,005	186,820	729,575	9,317.385	74.3
February 8,541.031	128,515	176,970	756,422	9,602,938	84.8
March 10,216,474	184,892	236,595	929,784	11,567,745	92.3
1st. Qtr 27,038,490	433,412	600,385	2,415,781	30,488,068	83.8
*April 9,884,322	195,730	237,018	964,850	11,281,920	93.0
†May 10,118,000	201,000	257,000	1,024,000	11,600,000	92.5

	-OPEN I	HEARTH-	-BESSI	EMER	ELEC	TRIC-	тот	'AL
		Per cent		Per cent		Per cent		Per cent
		of		of		of		of
Period	Net tons	capacity	Net tons	capacity	Net tons	capacity	Net tons	capacity
1958								
January	6,085,124	58.6	121,338	35.5	547,440	44.8	6,753,912	56.5
February .	5 252,112	56.0	81,597	26.4	448,614	40.6	5,782,323	53.6
March	5,598,944	53.9	122,317	35.8	533,361	43.6	6,254,622	52.3
1st Qtr 1	6,936,180	56.2	325,252	32.8	1,529,425	43.1	18,790,857	54.1
April	4,875,619	48.5	109,433	33.1	547,939	46.3	5,532,991	47.8
May	5 602 123	53.9	110.366	32.3	588,670	48.2	6,301,159	52.7
June	6,378,942	63.4	88,125	26.6	660,413	55.8	7,127,480	61.6
2nd Qtr 1	6,856,684	55.3	307.924	30.7	1,797,022	50.1	18,961,630	54.0
1st 6 Mo 3	3,792,864	55.7	633,176	31.7	3,326,447	46.6	37,752,487	54.1
July	5,712,587	55.0	114,218	33.4	615,600	50.4	6,442,405	53.9
August	6,481,185	62.4	134,435	39.3	692,383	56.6	7,308,003	61.1
September,	6,769 660	67.3	103.194	31.2	759 518	64.2	7,632,372	66.0
3rd Qtr 1	8,963,432	61.5	351,847	34.7	2,067,501	57.0	21,382,780	60.3
9 Mo 5	2,756,296	57.7	985,023	32.7	5,393,948	50.1	59,135,267	56.2
October	7,795,541	75.0	148,458	43.4	895 779	73.3	8,839,778	74.0
November	7,572,555	75.3	145,867	44.1	850,896	71.9	8,569,318	74.1
December .	7,755,002	74.6	116,637	34.1	838,883	68.6	8,710.522	72.9
4th Qtr 2	3,123,098	75.0	410,962	40.5	2,585 558	71.3	26,119,618	73.6
2nd 6 Mo., 4	2,086,530	68.3	762,809	37.6	4,653,059	64.1	47,502,398	67.0
Total 7	5,879,394	62.0	1,395,985	34.7	7,979,506	55.4	85,254,885	60.6

Note—The percentages are based on annual capacities as of Jan. 1, 1959: Open hearth, 126,528,-380 net tons; bessemer, 3.577,000 net tons; basic oxygen process, 4,033,160 net tons; electric and crucible, 13,495,130 net tons. Total: 147.633.670 net tons. In 1958, the capacity tonnages were: Open hearth, 122,321,830 net tons; bessemer, 4.027,000 net tons; oxygen process, electric and crucible, 14,393,740 net tons. Total: 140,742,570 net tons.

*Revised. †Preliminary.

DISTRICT INGOT RATES

(Percentage of Capa	city Eng	aged)	
Week Ended		Same	Week
June 21	Change	1958	1957
Pittsburgh 97	+ 2*	60	88
Chicago 95	+ 0.5	71	84.5
Eastern 95	- 2	62	94.5
Youngstown 92	- 3	53	80
Wheeling 88.5	- 2	70	83.5
Cleveland 95	+ 5.5*	49	87
Buffalo107.5	0	53.5	102.5
Birmingham 92	– 5	66	92.5
Cincinnati 94	0*	64	79
St. Louis 89	15	86	56.5
Detroit 94	- 4.5*	69	100
Western 97	- 1	72	101
National Rate 92.5	_ 1 5	CAE	00

INGOT PRODUCTION\$

W	eek Ended June 21	Week Ago	Month Ago	Year Ago
INDEX		162.1	164.6	109.1
NET TONS		2,604	2,644	1,751

*Change from preceding week's revised rate, †Estimated, †American Iron & Steel Institute, Weekly capacity (net tons): 2,831,331 in 1959; 2,699,173 in 1958; 2,559,490 in 1957.

NATIONAL STEELWORKS OPERATIONS % OF CAP. 100 90 80 70 60 50 40 30 COPYRIGHT 1959 1959 20 10 0 JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC .0

Price Indexes and Composites FINISHED STEEL PRICE INDEX (Bureau of Labor Statistics) 200 190 190 180 180 170 170 160 160 1959 - By Weeks 150 150 140 140 130 130 1953 1954 1955 1956 1957 MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. June 16, 1959 Week Ago Month Ago Year Ago May Avg. 186.7 186.7 186.7 186.7 181.5

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended June 16

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

	Rails, Standard No. 1	\$5.825	Bars, Reinforcing	6.385
Š	Rails, Light, 40 lb	7.292	Bars, C.F., Carbon	10.710
	Tie Plates	6.875	Bars, C.F., Alloy	14.125
			Bars, C.F., Stainless, 302	
	Axles, Railway	10.175	(lb)	0.570
	Wheels, Freight Car, 33	00.000	Sheets, H.R., Carbon	6.350
	in. (per wheel)	62.000	Sheets, C.R., Carbon	7.300
	Plates, Carbon	6.350	Sheets, Galvanized	8.615
	Structural Shapes Bars, Tool Steel, Carbon	6.167	Sheets, C.R., Stainless, 302	0.050
	(lb)	0.560	(lb)	0.658 12.625
	Bars, Tool Steel, Alloy, Oil	0.500	Strip, C.R., Carbon	9.489
	Hardening Die (lb)	0.680	Strip, C.R., Stainless, 430	0.100
	Bars. Tool Steel. H.R.	0.000	(lb)	0.480
	Alloy, High Speed, W		Strip, H.R., Carbon	6.250
	6.75, Cr 4.5, V 2.1, Mo		Pipe, Black, Buttweld (100	0.200
	5.5. C 0.060 (lb)	1.400	ft)	19.905
	Bars, Tool Steel, H.R.		Pipe, Galv., Buttweld (100	
	Alloy, High Speed, W18,		ft)	23.253
	Cr 4, V 1 (lb)	1.895	Pipe, Line (100 ft)	199.533
	Bars, H.R., Alloy	10.775	Casing, Oil Well, Carbon	
	Bars, H.R., Stainless, 303		(100 ft)	201.080
	(lb)	0.543	Casing, Oil Well, Alloy	
	Bars, H.R., Carbon	6.675	(100 ft)	315.213

Tubes, Boiler (100 ft)	51,200	Black Plate, Canmaking	
Tubing, Mechanical, Car-		Quality (95 lb base box)	7.900
bon (100 ft)		Wire, Drawn, Carbon	10.575
Tubing, Mechanical, Stain-		Wire, Drawn, Stainless,	0.00
less, 304 (100 ft)		430 (lb)	0.665
		Bale Ties (bundles)	7.967
Tin Plate, Hot-dipped, 1.25		Nails, Wire, 8d Common.	9.825
lb (95 lb base box)		Wire, Barbed (80-rod spool)	8.722
Tin Plate, Electrolytic.		Woven Wire Fence (20-rod	
0.25 lb (95 lb base box)	8.800	roll)	21.737

STEEL'S FINISHED STEEL PRICE INDEX*

			June 17 1959	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index	(1935-39	avg=100)	247.82	247.82	247.82	239.15	189.75
Index	in cents	per lb	6.713	6.713	6.713	6,479	5.140

STEEL'S ARITHMETICAL COMPOSITES*

Finished Steel, NT	\$149.96	\$149.96	\$149.96	\$145.52	\$113.20
No. 2 Fdry, Pig Iron, GT.	66.49	66.49	66.49	66.49	56.54
Basic Pig Iron, GT	65.99	65.99	65.99	65.99	56.04
Malleable Pig Iron, GT	67.27	67.27	67.27	67.27	57.27
Steelmaking Scrap, GT	36.50	35.50	33.33	35.00	27.83

^{*}For explanation of weighted index see Steel, Sept. 19, 1949, p. 54; of arithmetical price composite, Steel, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

	FINISHED STEEL	June 17 1959	Week Ago	Month Ago	Year Ago	5 Yr Ago
the said the	Bars, H.R., Pittsburgh Bars, H.R., Chicago Bars, H.R., deld., Philadelphia Bars, C.F., Pittsburgh	5.675 5.675 5.975 7.65*	5.675 5.675 5.975 7.65*	5.675 5.675 5.975 7.65*	5.425 5.425 5.725 7.30*	4.15 4.15 4.405 5.20
1/2 AT 25	Shapes, Std., Pittsburgh Shapes, Std., Chicago Shapes, deld., Philadelphia	5.50 5.50 5.77	5.50 5.50 5.77	5.50 5.50 5.77	5.275 5.275 5.545	4.10 4.10 4.38
	Plates, Pittsburgh Plates, Chicago Plates, Coatesville, Pa Plates, Sparrows Point, Md. Plates, Claymont, Del	5.30 5.30 5.30 5.30 5.30	5.30 5.30 5.30 5.30 5.30	5.30 5.30 5.30 5.30 5.30	5.10 5.10 5.10 5.10 5.10	4.10 4.10 4.10 4.10 4.10
	Sheets, H.R., Pittsburgh Sheets, H.R., Chicago Sheets, C.R., Pittsburgh Sheets, C.R., Chicago Sheets, C.R., Detroit Sheets, Galv., Pittsburgh	5.10 5.10 6.275 6.275 6.275 6.875	5.10 5.10 6.275 6.275 6.275 6.875	5.10 5.10 6.275 6.275 6.275 6.875	4.925 4.925 6.05 6.05 6.05 6.60	3.925 3.925 4.775 4.775 4.975 5.275
	Strip, H.R., Pittsburgh Strip, H.R., Chicago Strip, C.R., Pittsburgh Strip, C.R., Chicago Strip, C.R., Detroit	5.10 5.10 7.425 7.425 7.425	5.10 5.10 7.425 7.425 7.425	5.10 5.10 7.425 7.425 7.425	4.925 4.925 7.15 7.15 7.15	4.425 3.925 5.45 5.70 5.65
	Wire, Basic, Pittsburgh Nails, Wire, Pittsburgh	8.00 8.95	8.00 8.95	8.0 0 8.9 5	7.65 8.95	5.525 6.55
-	rin plate(1.50 lb)box, Pitts.		\$10.65	\$10.65	\$10.30	\$8.95

•Including 0.35c for special quality.

SEMIFINISHED STEEL

Billets	, forging,	Pitts.	(NT)	\$99.50	\$99.50	\$99.50	\$96.00	
Wire	rods 3-5/	" Pitt	3	6.40	6.40	6.40	6.15	4.52

PIG IRON, Gross Ton	June 17 1959	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pittsburgh	\$67.00	\$67.00	\$67.00	\$67.00	\$57.00
Basic, Valley	66.00	66.00	66.00	66.00	56.00
Basic, deld., Philadelphia	70.41	70.41	70.41	70.41	59.66
No. 2 Fdry, NevilleIsland, Pa.	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, Chicago	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, deld., Phila	70.91	70.91	70.91	70.91	60.16
No. 2 Fdry, Birmingham	62.50	62.50	62.50	62.50	52.88
No. 2 Fdry(Birm.)deld., Cin.	70.20	70.20	70.20	70.20	60.13
Malleable, Valley	66.50	66.50	66.50	66.50	56.50
Malleable, Chicago	66.50	66.50	66.50	66.50	56.50
Ferromanganese, net ton;	245.00	245.00	245.00	245.00	200.00

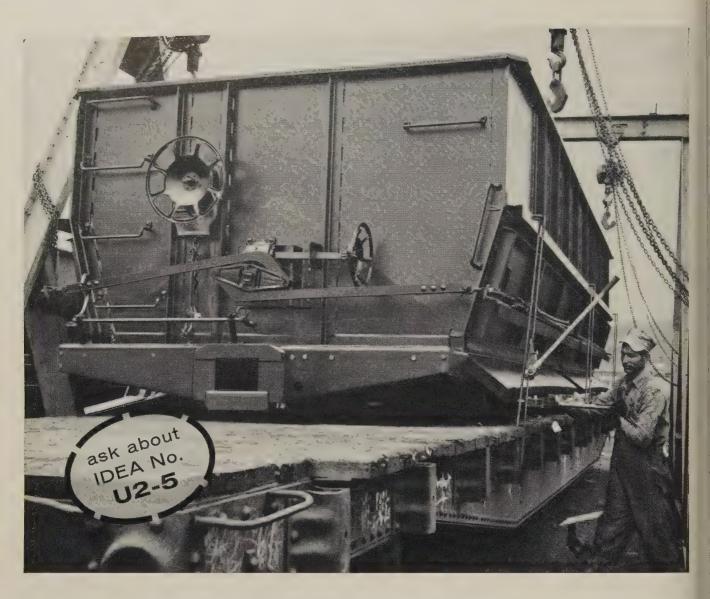
†74-76% Mn, Duquesne, Pa.

SCRAP. Gross Ton (Including broker's commission)

30	KALL GLOSS LOW CHICK		m			
No.	1 Heavy Melt Pittsburgh	\$36.50	\$35.50	\$34.50	\$35.50	\$29.50
No.	1 Heavy melt E. Pa	38.00	36.00	33.50	34.00	23.00
No	1 Heavy Melt, Chicago.	35.00	35.00	32.00	35.50	31.00
No.	1 Heavy Melt, Valley	39.50	39.50	35.50	36.50	29.50
No.	1 Heavy Melt, Cleve	36.50	36.50	33.50	33.00	28.50
No.	1 Heavy Melt, Buffalo .	33.50	33.50	31.50	26.50	26.50
Ra	ils, Rerolling, Chicago	58.50	58.50	55.50	52.50	44.50
No	1 Cast, Chicago	50.50	50.50	47.50	41.50	38.50

COKE, Net Ton

Beehive, Furn., Connisvi	\$15.00	\$15.00	\$15.00	\$15.25	\$14.7
Beehive, Fdry., Connlsvl	18.25	18.25	18.25	18.25	16.7
Oven, Fdry., Milwaukee	32.00	32.00	32.00	30.50	25.25



Call your AIM*... Ortner Co. did...

Savings Gained from Car Bracing Idea

Acme Idea Man
A. F. O'Brien worked
with Ortner in
developing this
money-saving
car bracing method.



ORTNER COMPANY, CINCINNATI, OHIO, was looking for a method for securing railroad hopper car bodies and components to flat cars for transit to a gulf coast port, where they would be shipped overseas. The method used would have to meet approval of the railroads and provide damage-free shipment. Heavy-duty Acme Steel Strapping was selected as the bracing material, and their Acme Idea Man helped work out a method that received railroad approval. (Idea No. U2-5)

Acme Steel Strapping secures the hopper body to the flat car, and the trucks are braced at each end of the body.

Ortner Company finds that by using steel strapping the hopper cars are loaded and braced in about half the time and at about one-third the material cost required by other bracing methods.

*Gall your Acme Idea Man. He will show you how Acme Steel

*Call your Acme Idea Man. He will show you how Acme Steel
Strapping can help solve your product handling and shipping problems.
Phone him at the nearest Acme Steel office. Or write Dept. SDU-69,
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In Canada, Acme Steel Company of Canada, Ltd.,
743 Warden Ave., Toronto 13, Ontario.



Steel Prices Mill Code	prices as reported to STEEL, number following mill poin	June 17, cents per pound ent indicates producing compa	scept as otherwise noted. C ny. Key to producers, page	hanges shown in italics. 132; footnotes, page 134.
Farrell, Pa. S3 82.00 Lowellville, O. S3 82.00 Midland, Pa. C18 82.00 Munhall, Pa. U5 82.00 Sharon, Pa. S3 82.00	Minnequa, Colo. C10 . 6.69 Monessen, Pa. P. 7 6.40 N.Tonawanda, N.Y. B11 . 6.40 Pittsburg, Calif. C11 . 7.20 Portsmouth, O. P12 6.40 Roebling, N.J. R2 6.50 S. Chicago, Ill. R2, W14 . 6.40 SparrowsPoint, Md. B2 . 6.50 Sterling, Ill. (1) N15 . 6.40 Sterling, Ill. N15 . 6.50 Struthers, O. Y1 . 6.40	Bessemer, Ala. T2 5.30 Clairton, Pa. U5 5.30 Claymont, Del. C22 5.30 Cleveland J5, R2 5.30 Coatesville, Pa. L7 5.30 Conshohocken, Pa. A3 5.30 Ecorse, Mich. G5 5.30 Fairfield, Ala. T2 5.30 Fairfield, Ala. T2 5.30 Fontana, Calif. (30) K1 6.10 Gary, Ind. U5 5.30	Atlanta (9) A11 . 5.875 Bessemer, Ala. (9) T2 . 5.675 Birmingham (9) C15 . 5.675 Buffalo (9) R2 5.675 Canton, O. (23) R2 6.15 Clairton, Pa. (9) U5 . 5.675 Cleveland (9) R2 5.675 Ecorse, Mich. (9) G5 5.675 Emery ville, Calif. J7 . 6.425 Fairfield, Ala. (9) T2 . 5.675 Fairless, Pa. (9) U5 . 5.825 Fontana, Calif. (9) K1 . 6.375	Niles, Calif. P1 6.375 Pittsburgh J5 5.675 Portland, Oreg. 04 6.425 SanFrancisco S7 6.52 Seattle B3 6.425 BAR SHAPES, Hot-Rolled Alloy Aliquippa, Pa. J5 6.80 Clairton, Pa. U5 6.80 Gary, Ind. U5 6.80 Houston S5 7.05 KansasCity, Mo. S5 7.05
Clairton, Pa. U5 80.00 Ensley, Ala. T2 80.00 Fairfield, Ala. T2 80.00 Fontana, Calif. K1 90.50 Gary, Ind. U5 80.00 Johnstown, Pa. B2 80.00 Lackawanna, N. Y. B2 80.00 Munhall, Pa. U5 80.00 Owensboro, Ky G8 80.00 Dischies	Bessemer, Ala. T2 5.50 Bethlehem, Pa. B2 5.55 Birmingham C15 5.50 Clairton, Pa. U5 5.50 Fairfield, Ala. T2 5.50	Geneva, Utah C11 5.30 GraniteCity, Ill. G4 5.40 Harrisburg, Pa. P4 5.30 Houston S5 5.40 Ind. Harbor, Ind. I-2, Y1.5.30 Johnstown, Pa. B2 5.30 Lackawanna, N.Y. B2 5.30 Mansfield, O. E6 5.30 Minnequa, Colo. C10 6.15 Munhall, Pa. U5 5.30 Newport, Ky. A2 5.30 Pittsburgh J5 5.39 Riverdale, Ill. A1 5.30 Seattle B3 6.20 Sharon, Pa. S3 5.30	Milton, Pa. M185.825 Minnequa, Colo. C106.125 Niles, Calif. P16.375 N.T'wan'a, N.Y. (23) B11 6.025 Owenshoro Ky (9) G8 6.025	Ambridge, Pa. W18 . 10.175 BeaverFalls, Pa. M12 . 10.175 Camden, N.J. P13 . 10.35 Chicago W18 . 10.175 Elyria, O. W8 10.175 Monaca. Pa. S17 . 10.175
S. Duquesne, Pa. U5 80.00 Sterling, III. N15 80.00 Youngstown R2 80.00 Carbon, Forging (NT) Bessemer, Pa. U5 \$99.50 Buffalo R2 99.50 Canton, O. R2 102.00 Clairton, Pa. U5 99.50 Conshohocken, Pa. A3 104.50 Conshohocken, Pa. A3 104.50 Ensley, Ala. T2 99.50 Fairfield, Ala. T2 99.50 Fairfield, Ala. T2 99.50 Farrell, Pa. S3 99.50 Fontana, Calif. K1 109.00 Gary, Ind. U5 Geneva, Utah C11 99.50	Ind. Harbor, Ind. I-2, Y1, 5, 50 Johnstown, Pa, B2, 5, 55 Joliet, Ill. P22, 5, 55 Kansas City, Mo. 85, 5, 60 Lackawanna, N.Y. B2, 5, 55 Los Angeles B3, 6, 20 Minnequa, Colo. C10, 5, 80 Munhall, Pa, U5, 5, 50 Niles, Calif. P1, 6, 25 Phoenix Wille, Pa, P4, 5, 55 Portland, Oreg. O4, 6, 25 Seattle B3, 6, 25 S. Chicago, Ill. U5, W14, 5, 50 S. San Francisco B3, 6, 15 Sterling, Ill. N15, 5, 50	S.Chicago, Ill. U5, W14. 5.30 SparrowsPoint Md. B2 5.30 Sterling, Ill. N15 . 5.30 Sterling, Ill. N15 . 5.30 Steubenville.O. W10 . 5.30 Warren, O. R2 . 5.30 Youngstown U5, Y1 . 5.30 Youngstown (27) R2 5.30 PLATES, Carbon Abras. Resist. Claymont, Del. C22 . 7.05 Fontana, Calift. K1 . 7.85 Geneva, Utah C11 . 7.05 Houston S5 . 7.15 Johnstown, Pa. B2 . 7.05 SparrowsPoint, Md. B2 . 7.05	Pittsburgh (9) J5 5.675 Portland, Oreg. O4 6.425 Riverdale. III. (9) A1 5.675 Seattle A24, B3, N14 6.425 S.Ch'c'go (9) R2. U5. W14 5.675 S. Duquesne, Pa. (9) U5. 5.675 S. SanFran., Calif. (9) B3 6.425 Sterling, III. (1) (9) N15 5.675 Sterling, III. (9) N15 5.775 Struthers. O. (9) Y1 5.675 Tonawanda, N. Y. B12 5.675 Torrance, Calif. (9) C11. 6.375 Warren, O. C17 6.025	# Grade A; add 0.05c for Grade B. # BARS, Cold-Finished Curbon Ambridge,Pa. W18 7.65 BeaverFalls,Pa. M12.R2.7.65 Birmingham C15 8.25 Buffalo B5 7.70 Camden,N.J. P13 8.10 Carnegie,Pa. C12 7.65 Chicago W18 7.65 Cieveland A7. C20 7.65
104.50	Torrance.Calif. C11 6.20 Weirton,W.Va. W6 5.50 Wide Flonge Bethlehem,Pa. B2 5.55 Clairton,Pa. U5 5.50 Fontana,Calif. K1 6.45 IndianaHarbor.Ind. I-2.5.50 Lackawanna,N.Y. B2 5.55 Munhall,Pa. U5 5.50 Phoenixville.Pa. P4 5.55 S.Chicago.Ill. U5 5.50 Sterling,Jll. N15 5.50 Weirton,W.Va. W6 5.50 Alloy Std. Shapes	PLATES, Wrought Iron Economy, Pa. B14 . 13.55 PLATES, H.S., I.A. Aliquippa, Pa. J5 . 7.95 Ashland, Ky. A10 . 7.95 Clairton, Pa. U5 . 7.95 Clairton, Pa. U5 . 7.95 Claymont, Del. C22 . 7.95 Cleveland J5, R2 . 7.95 Coatesville, Pa. L7 . 7.95 Conshohocken, Pa. A3 7.95 Economy, Pa. B14 . 7.95 Econes, Mich. G5 . 7.95 Fairfield, Ala. T2 . 7.95	BARS, Hot-Rolled Alloy Aliquippa, Pa. J5 6.725 Bethiehem, Pa. B2 6.725 Bridgeport, Conn. C32 6.80 Buffalo R2 6.725 Canton, O. R2, T7 6.725 Clairton, Pa. U5 6.725 Detroit S41 6.725 Economy, Pa. B14 6.725 Ecorse, Mich. G5 6.725 Fairless, Pa. U5 6.875 Farrell, Pa. S3 6.725 Fontana, Calif. K1 7.775 Gary, Ind. U5 6.975 Houston S5 6.975	Detroit B5, P17 7.85 Detroit S41 7.65 Donora, Pa. A7 7.65 Elyria, O. W8 7.65 Elyria, O. W8 7.65 EranklinPark, Ill. N5 7.65 Gary, Ind. R2 7.65 GreenBay, Wis. F7 7.65 Hammond, Ind. J5, L2 7.65 Hartford, Conn. R2 8.15 Harvey, Ill. B5 7.65 Hartvey, Ill. B5 7.65 LosAngeles (49) S30 9.10 LosAngeles (49) P2, R2 9.10 Mansfield, Mass. B5 8.20 Massillon, O. R2, R8 7.65 Midland, Pa. C18 7.65 Midland, Pa. C18 7.65 Monaca, Pa. S17 7.65
Lackawanna, N.Y. B2119.00	Aliquippa, Pa. J5 6. 80 Clairton, Pa. U5 6. 80 Gary, Ind. U5 6. 80 Houston S5 6. 90 Munhall, Pa. U5 8. 80 S.Chicago, Ill. U5, W14 6. 80 H.S., LA, Std. Shopes Aliquippa, Pa. J5 8. 05 Bessemer, Ala. T2 8. 05 Bethlehem, Pa. B2 8. 10 Clairton, Pa. U5 8. 05 Foriffield, Ala. T2 8. 05 Foriana, Calif. Ki 8. 85	Farrell, Pa. S3 7.95 Fontana, Calif. (30) K1 8.75 Gary, Ind. U5 7.95 Geneva, Utah C11 7.95 Houston S5 8.05 Ind. Harbor, Ind. I-2, Y1.7.95 Johnstown, Pa. B2 7.95 Munhall, Pa. U5 7.95 Pittsburgh J5 7.95 Seattle B3 8.85 Sharon, Pa. S3 7.95 S, Chicago, Ill. U5, W14 7.95 SparrowsPoint, Md. B2 7.95 Warren, O. R2 7.95 Youngstown U5, Y1 7.95	Ind. Harbor, Ind. I-2, Y1. 6.725 Johnstown, Pa. B2 6.725 Kansas City, Mo. S5 6.725 Lackawanna, N. Y. B2 6.725 Los Angeles B3 7.775 Lowellville, O. S3 6.725 Massillon, O. R2 6.725 Midland, Pa. C18 6.725	Newark, N.J. W18 8.10 NewCastle, Pa. (17) B4 7.65 Pittsburgh J5 7.65 Plymouth, Mich. P5 7.96 Putnam, Conn. W18 8.20 Readville, Mass. C14 8.20 S.Chicago, Ill. W14 7.65 SpringCity, Pa. K3 8.10 Struthers, O. Y1 7.65
Massillon.O. R2	Houston S5 8.15 Ind. Harbor. Ind. 1-2, Y1.8.05 Johnstown, Pa. B2 8.10 Kansas City, Mo. S5 8.15 Lackawanna, N. Y. B2 8.10 Los Angeles B3 8.75 Munhall, Pa. U5 8.05 Seattle B3 8.80 S. Chicago, III. U5. W14 8.05 S. Sanfrancisco B3 8.70 Sterling, III. N15 7.77 Sterling, III. N15 7.75 Struthers, O. Y1 8.05 H.S., L.A., Wide Flange Bethlehem, Pa. B2 8.10 Ind. Harbor, Ind. 1-2 8.05	PLATES, Alloy 7.50 Aliquippa, Pa. U5 7.50 Claymont, Del. C22 7.50 Coatesville, Pa. L7 7.50 Economy, Pa. B14 7.50 Farrell, Pa. S3 7.50 Fontana, Calif. K1 8.30 Gary, Ind. U5 7.50 Houston S5 7.60 Ind. Harbor, Ind. Y1 7.50 Johnstown, Pa. B2 7.50 Lowellville, O. S3 7.50 Munhall, Pa. U5 7.50 Newport, Ky A2 7.50 Pittsburgh J5 7.50	Youngstown U5 6.725 BARS & SMALL SHAPES, H.R. High-Strength, Low-Alloy Aliquippa, Pa. J5 8.30 Bessemer, Ala. T2 8.30 Bethlehem, Pa. B2 8.30 Clairton, Pa. U5 8.30 Cleveland R2 8.30 Ecorse, Mich. G5 8.30 Fontana, Calif. K1 9.00 Gary, Ind. U5 8.30 Houston S5 8.55 Ind. Harbor, Ind. Y1 8.30	(Turned and Ground) Cumberland, Md. (5) C19 6.55 BARS, Cold-Finished Alloy Ambridge, Pa. W18 9.025 BeaverFalls, Pa. M12, R2 9.025 Bethlehem, Pa. B2 9.025 Bridgeport, Conn. C32 9.175 Buffalo B5 9.025 Camden, N.J. P13 9.025 Camden, N.J. P13 9.025 Carnegie, Pa. C12 9.025 Chicago W18 9.025 Cleveland A7, C20 9.025 Cleveland A7, C20 9.025 Datroit B5, P17 9.225
S.Chicago, III. R2, W14 122.50	Lackawanna, N. Y. B2 . 8.10 Munhall, Pa. U5 . 8.05 S.Chicago, Ill. U5 . 8.05 Sterling, Ill. N15 . 7.75 PILING BEARING PILES Bethlehem, Pa. B2 . 5.55 Ind. Harbor, Ind. I-2 . 5.50 Lackawanna, N. Y. B2 . 5.55 Munhall, Pa. U5 . 5.50 S.Chicago, Ill. I-2, U5 . 5.50 STEEL SHEET PILING Ind. Harbor, Ind. I-2 . 6.50	Seattle B3 8.40 Sharon, Pa. S3 7.50 S. Chicago, Ill. U5, W14. 7.50 SparrowsPoint, Md. B2 7.50 Youngstown Y1 7.50 FLOOR PLATES Cleveland J5 6.375 Conshohocken, Pa. A3 6.375 Ind. Harbor, Ind. I-2 6.375 Munhall, Pa. U5 6.375 Pittsburgh J5 6.375 S. Chicago, Ill. U5 6.375 PLATES, Ingot Iron Ashland c.l. (15) A10 5.55	Johnstown, Pa. B2	Detroit S41
Develand A7	Lackawanna, N. Y. B2 6.50 Munhall, Pa. U5 6.50 S. Chicago, Ill. I-2, U5 6.50 Weirton, W. Va. W6 6.50 PLATES PLATES, Carbon Steel AlabamaCity, Ala. R2 5.30 Aliquippa, Pa. J5 5.30	Ashland 1.c.l. (15) A10 . 6.05 Cleveland c.l. R2 6.05 Warren, O. c.l. R2 6.05 BARS BARS BARS, Hot-Rolled Carbon (Merchant Quality) Ala.City, Ala. (9) R2 5.675 Aliquippa, Pa. (9) J5 5.675	Lackawanna(9) B25.675 Sterling,Ill. N155.775 Sterling,Ill. (1) N155.675 Tonawanda,N.Y. B125.675 BAR SIZE ANGLES: S. Shapes Aliquippa,Pa. J55.675 Atlanta A115.875	Plymouth Mich. P5 9.225 S. Chicago, Ill. W14 9.025 SpringCity, Pa. K3 9.20 Struthers.O. Y1 9.025 Warren, O. C17 9.025 Waukegan, Ill. A7 9.025 Willimantic, Conn. J5 9.325 Worcester, Mass. A7 9.325

BARS, Reinforcing, (I) Fobrical (I) Fobrical (I) Alabama (It), Ala. R2 . 5.675 Atlanta A11 5.675 Birmingham C15 . 5.675 Birmingham C15 . 5.675 Birmingham C15 . 5.675 Birmingham C15 . 5.675 Eurfalo R2 . 5.675 Ecorse. Mich. G5 . 5.675 Ecorse. Mich. G5 . 5.675 Emeryville. Calif. J7 . 6.425 Fairlield. Ala. T2 . 5.675 Fairless. Pa. U5 . 5.825 Fontana. Calif. K1 . 6.375 Fit. Worth. Tex (4) (26) T4 5.925 Gary. Ind. U5 . 5.675 Houston S5 . 5.925 Ind. Harbor, Ind. I-2, Y1 5.675 Johnstown. Pa. B2 . 5.675 Kokomo. Ind. C16 . 5.775 Lackawanna. N.Y. B2 . 5.675 Kokomo, Ind. C16 . 5.775 Lackawanna. N.Y. B2 . 5.675 Madison. Ill. L1 . 5.875 Milton. Pa. M18 . 5.825 Minnequa. Colo. C10 . 6.125 Niles, Calif. P1 . 6.375 Pittsburg. Calif. C11 . 6.375 Pittsburg. Calif. C11 . 6.375 Pittsburg. Calif. C11 . 6.375 Portland. Oreg. O4 . 6.425 SandSprings. Okla. S5 . 5.925 Scattle A24, B3, N14 . 6.425 SparrowsPoint. Md. B2 . 5.675 S. SanFrancisco B3 . 6.425 SparrowsPoint. Md. B2 . 5.675 Sterling. Ill. (1) N15 . 5.675 Sterling. Ill. (2) N15 . 5.675 BARS, Reinforcing, Billet (Fabricated: To Consumers) Baltimore B2 . 7.42 Cleveland U8 . 7.39 Houston S5 . 7.60 Johnstown. Pa. B2 . 7.33 Houston S5 . 7.60 Johnstown. Pa. B2 . 7.33 Houston S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 Marion O. P11 . 6.70 Newark. N.J. U8 . 7.80 Johnstown. Pa. B2 . 7.33 Houston S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 SandSprings. Okla S5 . 7.60 Seattle A24. B3, N14 . 7.95 SparrowsPt. Md. B2 . 7.33 SandSprings. Okla S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 SandSprings. Okla S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 SandSprings. Okla S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 SandSprings. Okla S5 . 7.60 Lackawanna. N.Y. B2 . 7.35 SandSprings. Okla S5 . 7.60	McK.Rks.(B.R.) L5 14.50 McK.Rks.(D.R.) L5 19.80 McK.Rks.(Staybolt) L5 20.95 BARS, Rcil Steel ChicagoHts.(3) C2, I-2 5.575 ChicagoHts.(4) C2 5.676 ChicagoHts.(4) C2 5.676 ChicagoHts.(4) C2 5.675 Franklin, Pa. (3) F5 5.575 Franklin, Pa. (4) F5 5.675 JerseyShore, Pa. (3) J8 5.55 Marion, O. (3) P11 5.575 Tonawanda (3) B12 5.575 Tonawanda (3) B12 5.575 Tonawanda (4) B12 6.10 SHEETS SHEETS, Hot-Rolled Steel (18 Gage and Heavier) AlabamaGity, Ala. R2 5.10 Allenport, Pa. P7 5.10 Allenport, Pa. P7 5.10 Allenport, Pa. P7 5.10 Allenport, Pa. P7 5.10 Cleveland J5, R2 5.10 Conshohocken, Pa. A3 5.15 Detroit (8) M1 5.10 Ecorse, Mich. G5 5.10 Fairfield, Ala. T2 5.10 Fontana, Calif. K1 5.825 Gary, Ind. U5 5.10 Geneva, Utah C11 5.20 GraniteCity, III. (8) G4 5.20 Ind. Harbor, Ind. I-2, Y1.5.10 Irvin, Pa. U5 5.10 Lackawanna, N.Y. B2 5.10 Mansfield, O. E6 5.10 Munhall. Pa. U5 5.10 Newport, Ky. A2 5.10 Niles, O. M21, S3 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 SparrowsPoint, Md. B2 5.10 Schicago, III. U5, W14, 5.10 Schicago, II	Weirton, W. Va., W6 7.525 Youngstown U5, Y1 7.525 SHEETS, Hot-Rolled Ingot Iron (18 Gage and Heavier) Ashland, Ky. (8) 410 5.35 Cleveland R. 2 5.875 Warren, O. R. 2 5.875 SHEETS, Cold-Rolled Ingot Iron Cleveland R. 2 7.05 SHEETS, Cold-Rolled Ingot Iron Cleveland R. 2 7.05 SHEETS, Cold-Rolled Steel (Commercial Quality) AlabamaCity, Ala. R. 2 .6.275 Allenport, Pa. P7 6.275 Allenport, Pa. P7 6.275 Allenport, Pa. P7 6.275 Cleveland J5, R. 2 6.275 Cleveland J5, R. 2 6.275 Conshohocken, Pa. A. 3. 6.325 Detroit M1 6.275 Fairfield, Ala. T2 6.275 Fairfield, Ala. T2 6.275 Fairfield, Ala. T2 6.275 Fairfield, Na. T2 6.275 Fontana, Callif, K1 7.40 Gary, Ind. U5 6.275 GraniteCity, Ill. G4 6.275 Ind, Harbor, Ind. I-2, Y1 6.275 Ind, Harbor, Ind. I-2, Y1 6.275 Middletown, O. A10 6.275 Newport, Ky. A2 6.275 Pittsburg, Calif, C11 7.225 Pittsburg, Calif, C11 7.25 Pittsburg, Calif, C11 7.25 SparrowsPoint, Md. B2 6.275 Steubenville, O. W10 6.275 Steubenville, O. W10 6.275 Weirton, W2 W6 6.275 Weirton, W2 6.275	High-Strength, Low-Alloy	High-Strength, Low-Alloy Irvin, Pa. U5 10.125 Pittsburgh J5 10.125 Pittsburgh J5 10.125 Pittsburgh J5 10.125 Pittsburgh J5 10.025 SHEETS, Golvanneaded Steel Canton, O. R2 7.275 Carton, Pa. U5 7.275 Carton, Pa. U5 7.275 Carton, Pa. U5 7.275 Carton, Pa. U6 7.125 Carton, Pa. U6 Carton, Pa. U7 Carton, Pa. U7 Carton, Pa. U7 Carton, Pa. U7 Carton, Pa. U8 Carto
A1 Acme Steel Co. A2 Acme-Newport Steel Co. A3 Alan Wood Steel Co.	C22 Claymont Plant, Wickwire Spencer Steel Div., Colo. Fuel & Iron C23 Charter Wire Inc. C24 G. O. Carlson Inc. C25 Carpenter Steel of N.Eng. D2 Detroit Steel Corp. D4 Disston Div., H.K. Porter Co. Inc. D6 Driver-Harris Co. D7 Dickson Weatherproof Nail Co. D8 Damascus Tube Co. D9 Wilbur B. Driver Co. E1 Eastern Gas&FuelAssoc. E2 Eastern Stainless Steel E5 Eliott Bros. Steel Co. E6 Empire-Reeves Steel Corp. E10 Enamel Prod. & Plating F2 Firth Sterling Inc. F3 Fitzsimmons Steel Co. F6 Follansbee Steel Corp. F5 Franklin Steel Div., Borg-Warner Corp. F6 Fretz-Moon Tube Co. F7 Ft. Howard Steel & Wire F8 Ft. Wayne Metals Inc. G4 Granite City Steel Co. G5 Great Lakes Steel Corp. G6 Greer Steel Co. G7 Greer Steel Co. G8 Green River Steel Corp. H1 Hanna Furnace Corp. H2 Ingersoil Steel Div., Borg-Warner Corp. H3 Ingersoil Steel Div., Borg-Warner Corp. H4 Ingersoil Steel Div., Borg-Warner Corp. H5 Ingersoil Steel Div., Borg-Warner Corp. H6 Ivins Steel Tube Works H6 Ivins Steel Tube Works H7 Indiana Steel & Wire Co. H7 Jackson Iron & Steel Co. H7 Johnson Steel & Wire Co.	Toungstown Y16.275 —Key to Producers— J5 Jones & Laughlin Steel J6 Joslyn Mfg. & Supply J7 Judson Steel Corp. K2 Keokuk Electro-Metals K3 Keystone Drawn Steel K4 Keystone Steel & Wire K7 Kenmore Metals Corp. L1 Laclede Steel Co. L2 LaSalle Steel Co. L3 Latrobe Steel Co. L4 Lasalle Steel Co. L5 Lulkens Steel Co. L6 Lone Star Steel Co. L8 Leschen Wire Rope Div., H. K, Porter Co. Inc. M1 McLouth Steel Corp. M4 Mahoning Valley Steel M6 Mercer Pipe Div., Saw-hill Tubular Products M1 Mid-States Steel & Wire M12 Moltrup Steel Products M14 McInnes Steel Co. M16 Md. Fine & Specialty Wire Co. Inc. M17 Metal Forming Corp. M18 Milton Steel Div Merritt-Chapman&Scott M21 Mallory-Sharon Metals Corp. M22 Mill Strip Products Co. N1 National Tube Div., U. S. Steel Corp. N5 Nelsen Steel & Wire Co. N6 New England High Carbon Wire Co. N8 Newman-Crosby Steel N14 Northwest Steel Rolling Mills Inc. N15 Northwestern S.&W. Co. N20 Neville Ferro Alloy Co. O4 Oregon Steel Mills P1 Pacific States Steel Corp. P2 Pacific Tube Co.	P4 Phoenix Steel Corp. P5 Pilgrim Drawn Steel P6 Pittsburgh Coke&Chem. P7 Pittsburgh Steel Co. P11 Pollak Steel Co. P12 Portsmouth Div., Detroit Steel Corp. P13 Precision Drawn Steel P15 Pittsburgh Metallurgical P16 Page Steel & Wire Div., American Chain & Cable P17 Plymouth Steel Corp. P19 Pitts. Rolling Mills P20 Prod. Steel Strip Corp. P22 Phoenix Mfg. Co. P24 Phil. Steel & Wire Corp. R3 Republic Steel Corp. R6 Recbling's Sons. John A. R6 Rome Strip Steel Co. R7 Reilance Div., Eaton Mfg. R8 Reilance Div., Eaton Mfg. R9 Rome Mfg. Co. R10 Rodney Metals Inc. S1 Seneca Wire & Mfg. Co. S3 Sharon Steel Corp. S4 Sharon Tube Co. S5 Sheffield Div., Armco Steel Corp. S6 Shenango Furnace Co. S7 Simmons Co. S8 Simonds Saw & Steel Co. S1 Standard Tube Co. S1 Standard Tube Co. S1 Standard Tube Co. S1 Standard Tube Co. S1 Standard Forgings Corp. S1 Standard Tube Co. S1 Standard Tube Co. S1 Standard Tube Co. S1 Standard Tube Co. S20 Southern States Steel S23 Superior Steel Div., Copperweld Steel Co. S20 Southern States Steel S23 Superior Tube Co. S25 Stainless Welded Prod. S26 Specialty Wire Co. Inc. S30 Sierra Drawn Steel Corp. S40 Seneca Steel Service S41 Stainless & Strip Div., J&L Steel Corp.	S43 Seymour Mfg. Co. S44 Screw & Bolt Corp. of America T2 Tenn. Coal & Iron Div., U. S. Steel Corp. T3 Tenn. Products & Chemical Corp. T4 Texas Steel Co. T5 Thomas Strip Div., Pittsburgh Steel Co. T6 Thompson Wire Co. T7 Timken Roller Bearing T9 Tonawanda Iron Div., Am. Rad. & Stan. San. T13 Tube Methods Inc. T19 Techalloy Co. Inc. U3 Union Wire Rope Corp. U4 Universal-Cyclops Steel U5 United States Steel Corp. U5 United States Steel Corp. U6 U. S. Pipe & Foundry U1 Ulbrich Stainless Steels U8 U. S. Steel Corp. U11 Union Carbide Metals Co. U13 Union Steel Corp. V2 Vanadium-Alloys Steel V3 Vulcan-Kidd Steel Div., H. K. Porter Co. W1 Wallace Barnes Steel Div., Associated Spring Corp. W2 Washburn Wire Co. W4 Washington Steel Corp. W6 Weirton Steel Co. W8 Western Automatic Machine Screw Co. W9 Wheeling Steel Corp. W10 Wheeling Steel Corp. W12 Wickwire Spencer Steel Div., Colo, Fuel & Iron W13 Wilson Steel & Wire Co. W14 Wisconsin Steel Div

STRIP STRIP, Hot-Rolled Carbon	STRIP, Cold-Rolled Alloy Boston T615.90 Carnegie.Pa, S1815.55	STRIP, Cold-Rolled Ingot Iron	SILICON STEEL C.R. COILS & CUT LENGTHS (22 C) Fully Processed	Ga.) Arma- Elec- Dyna-
Ashland Ky. (8) A10 5.10 Ashland Ky. (8) A10 5.10 Atlanta A11 5.10 Bessemer, Ala T2 5.10 Birmingham C15 5.10 Buffalo (27) R2 5.10 Conshohocken, Pa. A3 5.15 Detroit M1 5.10	Farrell.Pa. S3	STRIP, C. R. Electrogalvanized Cleveland A77.425* Dover.O. G67.425*	(Semiprocessed ½c lower) Fi- BeechBottom W.Va. W10 . Brackenridge.Pa. A4 . GraniteCity.III. G4 9. IndianaHarbor.Ind. I-2 9. Mansfield, O. E6 9.	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Farrield, Ala. 12	Worcester, Mass. A715.85 Youngstown S4115.55 STRIP, Cold-Rolled High-Strength, Low-Alloy	*Plus galvanizing extras. STRIP, Galvanized (Continuous) Farrell.Pa. S37.50	Vandergrift,Pa. U5 Mansfield,O. E6 Warren,O. R2 (Silicon Lowce	Stator 8.10 8.10
Ind. Harbor, Ind. I-2, Y1 . 5.10 Johnstown, Pa. (25) B2 . 5.10 Lackaw'na, N. Y. (25) B2. 5.10 LosAngeles (25) B3 . 5.85 LosAngeles C1 8.60 Minnequa, Colo. C10 6.20 Riverdale, Ill. A1 5.10 SanFrancisco S7 6.60	Cleveland A7	Sharon, Pa. S37.50 TIGHT COOPERAGE HOOP Atlanta A115.65 Farrell, Pa. S35.525	SHEETS (22 Ga., coils & cut length Fully Processed (Semiprocessed 1/2c lower)	hs) T-72 T-65 T-58 T-52 15.70 16.30 16.80 17.85 15.70 16.30 16.80 17.85
Seattle (25) B3	STRIP, Cold-Finished 0. Spring Steel (Annealed) 0. Baltimore T6 Boston T6 Bristol. Conn. W1 Carnegie, Pa. S18	26- 0.41- 0.61- 0.81- 1.06- 40C 0.60C 0.80C 1.05C 1.35C 9.50 10.70 12.90 15.90 18.85 9.50 10.70 12.90 15.90 18.85	LENGTHS (22 Ga.) T-100 T	18.10 19.70 20.20 20.70 15.70†† 19.70 20.20 20.70 18.10 19.70 20.20 20.70 15.70
Warren, O. R25.10 Weirton, W. Va. W65.10 Youngstown U55.10	Detroit D2	9.05 10.50 12.70 9.05 10.50 12.70 15.70 8.95 10.40 12.60 15.60 18.55	semiprocessed ½c lower. ††Co	
Carnegie, Pa. S18 8.40	Farrell Pa. S3 Fostoria. O. S1 1 FranklinPark, III. T6 Harrison. N. J. C18 Indianapolis S41 LosAngeles C1 1 LosAngeles C1 1 LosAngeles S41 1 NewBritain, Conn. S15 NewCastle Pa. B4, E5 NewHaven. Conn. D2 NewKensington, Pa. A6 NewYork W3 Pawtuckt, R. I. N8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Chicago W13	Roebling.N.J. R5 10.05 S.Chicago. Ill. R2 9.75 S.An.Francisco C10 10.70 SparrowsPt.,Md. B2 9.85 Struthers.O. Y1 9.75 Trenton.N.J. A7 10.05 Waukegan. Ill. A7 9.75 Worcester. Mass. A7 10.05 Wire, MB Spring, High-Corbon Aliquippa.Pa. J5 9.75 Alton. Ill. L1 9.95 Bartonville. Ill. K4 9.85 Buffalo W12 9.75 Cleveland A7 9.75
Lackawanna, N.Y. B27.575	Rome.N.Y.(32) R6 Sharon.Pa. S3 Trenton.N.J. R5 Wallingford.Conn. W2 Warren.O. T5 Worcester.Mass. A7, T6. Youngstown S41 Spring Steel (Tempered) Bristol,Conn. W1 Buffalo W12 Fostoria,O. S1 FranklinPark,Ill. T6 Harrison,N.J. C18 NewYork W3 Palm r.Mass. W12 Trenton N.J. R5 Worcester.Mass. A7, T6	8.95 10.40 12.60 15.60 18.55 10.70 12.90 15.90 18.85 9.40 10.70 12.90 15.90 18.85 9.50 10.70 12.90 15.90 18.75 9.50 10.70 12.90 15.90 18.75 9.50 10.70 12.90 15.60 18.55 9.50 10.70 12.90 15.60 18.55 0.80C 1.560 18.55 0.80C 1.05C 1.35C 18.85 19.05 22.95 27.80 18.85 22.95 27.80 18.85 22.95 27.80 18.85 22.95 27.80	Fairfield, Ala. T2 8.00 Fostoria, O. (24) S1 8.10 Houston S5 8.25 Jacksonville, Fla. M8 8.35 Johnstown, Pa. B2 8.00 Joliet, Ill. A7 8.00 KansasCity, Mo. S5 8.25 Kokomo, Ind. C16 8.10 LosAngeles B3 8.95 Minnequa, Colo. C10 8.25 Monessen, Pa. P7, P16. 8.00 N. Tonawanda, N. Y. B11 8.00 Palmer, Mass. W12 8.30 Pittsburg, Calif. C11 8.95 Portsmouth, O. P12 8.00 Rankin, Pa. A7 8.00	Trenton N.J. A7 10.05
Weirton, W. Va. W6 7.575 Youngstown U5, Y1 7.575 STRIP, Hot-Rolled Ingot Iron Ashland, Ky. (8) A10 5.35	TIN MILL PRODUCTIN PLATE, Electrolytic (Base Bo Aliquippa, Pa. J5	0.25 lb 0.50 lb 0.75 lb 0.75 lb 9.10 \$9.35 \$9.75	Sterning, III. N15	Wor'ster, Mass. A7, J4, T6 10.05 WIRE, Fine & Weaving(8" Coils) Alton. Ill. L1
Boston T6 . 7.975 Buffalo S40 . 7.425 Cleveland A7, J5 . 7.425 Dearborn, Mich. S3 . 7.425 Detroit D2, M1, P20 . 7.425 Evanston.Ill. M22 . 7.525 Farrell, Pa. S3 . 7.425 Follansbee, W. Va. F4 . 7.425 Fontana, Califf. K1 . 9.20 Franklin Park, Ill. T6 . 7.525 Ind. Harbor, Ind. Y1 . 7.425 Indianapolis S41 . 7.575 Los Angeles C1, S41 . 9.30 McKeesport, Pa. E10 . 7.525 New Beritain, Conn. S15 . 7.875 New Beritain, Conn. S15 . 7.875 New Castle, Pa. B4, E5 . 7.425 Pawtucket, Pa. B4, E5 . 7.425 Pawtucket, RI. R3 . 7.975 Pawtucket, RI. N8 . 7.975 Phitaburgh J5 . 7.425 Riverdale, Ill. A1 . 7.525 Riverdale, Ill. A1 . 7.525 Rome, N. Y. (32) R6 . 7.425 Rome, N. Y. (32) R6 . 7.425 Sharon Pa. S3 . 7.425 Trenton, N. J. (31) R5 . 8.875 Hallusford Com. W2 . 7875	Fontana, Calif, K1 Gary, Ind. U5 GraniteCity, Ill. G4 IndianaHarbor, Ind. I-2, Y1 Irvin, Pa. U5 Niles, O. R2 Pittsburg, Calif. C11 SparrowsPoint, Md. B2 Weirton, W. Va. W6 Yorkville, O. W10 ELECTROLYTIC IIN-COATED SHEE IndianaHarbor, Ind. Y1 (20-2) Niles, O. R2 (20-27 Ga.) Aliquippa, Pa. J5 (21-27 Ga.) Aliquippa, Pa. J5 (21-27 Ga.) Aliquippa, Pa. J5 \$10.40\$ 10.65 Fairfield, Ala. T2 10.50 10.75 Fairless, Pa. U5 . 10.50 10.75 Fontana, Calif, K1 11.05 11.30 Gary, Ind. U5 . 10.40 10.65 Ind. Harb. Y1 . 10.40 10.65 Ind. Harb. Y1 . 10.40 10.65 Yorkville, O. W10 10.40 10.65 Yorkville, O. W10 10.40 10.65 Yorkville, O. W10 10.40 10.65 Forking, Gary, Ind. W10.65 Forking, Gary, Ind. W10.65 Forking, Gary, Ind. W10.65 Forking, Gary, Ind. W10.65 Forkville, O. W10 10.40 10.65 Forkingled, Ala. T2	9.20 9.45 9.85 9.75 10.00 10.40 9.10 9.35 9.75 9.20 9.45 9.60 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 9.10 9.35 9.75 10.00 10.40 9.10 9.35 9.75 10.00 10.40 9.10 9.35 9.75 10.00 10.40 9.10 9.35 9.75 10.00 9.	Elyria, O. W8	(A) Plow and Mild Plow:

NAILS, Stock Col. AlabamaCity, Ala. R2173 Aliquippa, Pa. J5173 Atlanta All 175	Atlanta A11 10.75 Bartonville, Ill. K4 9.69 Buffalo W12 10.65 Chicago W13 9.59 Crawfordsville, Ind. M8 9.69 Donora, Pa. A7 9.59 Duluth A7 9.59 Fairfield, Ala. T2 9.59 Houston S5 10.90 Jacksonville, Fla. M8 9.69 Johnstown, Pa. B2 10.65 Joliet, Ill. A7 9.59	Mire (16 gage) Stone Stone Ala.City, Ala.R2 17.85 19.40** Aliq'ppa, Pa. J517.85 19.65 Bartonville K417.95 19.80 Cleveland A717.85 Craw'dville M8 17.95 19.80† Fostoria, O. S118.35 19.90† Houston S518.10 19.65** Jacksonville M8 17.95 19.80† Johnstown B217.85 19.65\$* Kan.City, Mo. S518.10 Kokomo C1617.25 18.80† Minnequa C1018.10 19.65** P'lm'r, Mass. W12 18.15 19.70† Pitts, Calif. C11.18.20 19.75* St'ling (37) N15.17.25 19.05† SparrowsPt. B217.95 19.55† SparrowsPt. B217.95 19.40† Worcester A718.15 WIRE, Merchand Quality (6 to 8 gage) An'ld Galv. Ala.City, Ala. R29.00 9.55* Aliquippa J58.65 9.325\$ Aliquippa J58.65 9.325\$ Buffalo W129.00 9.55* Cleveland A79.00 9.55 Cleveland A79.00 9.55† Cleveland A79.00 9.80	(Full container) Hex Nuts, Reg. & Heavy Hot Pressed & Cold Punched: ¼ in. and smaller 62.0 ¼ in. to 1½ in., incl 56.0 1½ in. and larger . 51.5 Hex Nuts, Semifinished, Heavy (Incl. Slotted): ¾ in. to 1½ in. incl 56.0 1½ in. to 1½ in. incl 56.0 1½ in. and larger 51.5 Hex Nuts, Finished (Incl. Slotted and Castellated): ¾ in. and smaller 65.0 1 in. to 1½ in., incl 57.0 1½ in. and larger 51.5 Semifinished Hex Nuts, Reg. (Incl. Slotted): ¾ in. and smaller 65.0 1 in. to 1½ in., incl 57.0 1½ in. and smaller 51.5 Semifinished Hex Nuts, Reg. (Incl. Slotted): ¾ in. and smaller 45.0 Hex Nuts, Finished (Incl. Slotted): ¼ in. and smaller 45.0 1 in. to 1½ in., incl 57.0 1½ in. and smaller 52.0 ¾ in. and smaller 45.0 Hex Nuts, Finished (Incl. Slotted): % in. and smaller 45.0 1 in. to 1½ in., incl 57.0 1½ in. and smaller 52.0 % in. and smaller 45.0 Exercise than 6 in.: % in. and smaller 20.0 ¼, %, and 1 in + 11.0 % in. and smaller 20.0 ¼ in. and smaller 42.0 ¼ in. and smaller + 19.0 % in. and smaller + 29.0 Exercise than 6 in.: % in. and smaller + 19.0 % in. and smaller + 29.0 Exercise than 6 in.: % in. and smaller + 19.0 % in. and smaller + 19.0
Cleveland A9 177 Crawfordsville, Ind. M8 177 Donora, Pa. A7 175 Duluth A7 177 Fairfield, Ala. T2 177 Houston S5 177 Jacksonville, Fla. M8 177 Johnstown, Pa. B2 177 KansasCity, Mo. S5 178 Kokomo, Ind. C16 177 Minnequa, Colo. C10 177 Monessen, Pa. P7 177 Pittsburg, Calif. C11 199 Rankin, Pa. A7 177 S. Chicago, Ill. R2 177 SparrowsPt. Md. B2 177 SparrowsPt. Md. B2 177 Sterling, Ill. (7) N15 177 Worcester, Mass. A7 173	Kokomo, Ind. C16 9.69 LosAngeles B3 .11.45 Minnequa, Colo. C10 10.90 PittsburgCalif. C11 10.31 S. Chicago, Ill. R2 9.59 S. SanFrancisco C10 .11.45 SparrowsPt. Md. B2 10.75 Sterling, Ill. (37) N15 9.59 BALE TIES, Single loop Col. AlabamaCity, Ala. R2 .212 Atlanta A11 .214 Bartonville, Ill. K4 .214 Crawfordsville, Ind. M8 .214 Donora, Pa. A7 .212 Fairfield, Ala. T2 .212 Fairfield, Ala. T2 .212	Duluth A7 9.00 9.55† Fairfield T2 9.00 9.55+ Houston (48) S5 9.25 9.80** Jack'ville, Fla. M8 9.10 9.80tJ Johnstown (48) B2 9.00 9.675 Joliet, III. A7 9.00 9.55† Kans. City (48) S5 9.25 9.80** Kokomo (48) S16 9.91 9.65† LosAngeles B3 9.95 10.6258 Palmer, Mass. W12 9.30 9.85† Pitts, Calif. C11 9.95 10.507 Rankin, Pa. A7 9.00 9.55* S. Canigo R2 9.00 9.55* S. SanFran. C10 9.95 10.50* Spar'wsPt. (48) B2 9.10 9.7758 St'ling (1) (48) N15 9.00 9.7088 Struthers, O. Y1 9.00 9.65† Worcester, Mass. A7 9.30 9.85†	BOILER TUBES Net base c.l. prices, dollars per 100 ft, mill; minimum wall thickness, cut lengths 10 to 24 ft, inclusive. O.D. B.W. Seamless D. H.R. in. Goge H.R. C.D. H.R. 1 13 27.24 23.13 1½ 13 30.42 35.65 24.41 1½ 13 35.94 42.12 31.89 2 13 40.28 47.21 35.74 2½ 13 45.36 53.17 40.26 2¼ 13 45.36 53.17 40.26 2¼ 12 49.24 57.72 43.70 2½ 12 54.23 63.57 48.13 2¾ 12 58.73 68.83 52.13 3 12 62.62 73.40 55.59 RAILWAY MATERIALS
(To Wholesalers; per cwt) Galveston,Tex. D7\$10.3(NAILS, Cut (100 lb keg) To Distributors (33) Wheeling,W.Va. W10\$10.1(POLISHED STAPLES Col	KansasCity,Mo. S5 .217 Kokomo,Ind. C16 .214 Minnequa,Colo. C10 .217 Pittsburg,Calif. C11 .236 S.SanFrancisco C10 .236 S.SparrowsPt.,Md. B2 .214 Sterling,Ill.(7) N15 .214	Based on zinc price of: *13.50. †5c. \$10c. ‡Less than 10c. ††10.50c. ‡11.00c. **Subject to zinc equalization extras. \$\$11.50c.	Rails No. 1 No. 2 No. 2 Under
AlabamaCity, Ala, R2 17; Aliquippa, Pa. J5 17; Aliquippa, Pa. J5 17; Altanta A11 17; Bartonville, Ill. K4 17; Crawfordsville, Ind. M8 17; Donora, Pa. A7 17; Duluth A7 17; Duluth A7 17; Houston S5 18; Jacksonville, Fla. M8 17; Johnstown, Pa. B2 17; Johnstown, Pa. B2 17; Johnstown, Pa. B2 17; Johnstown, Da. M8 17; KansasCity, Mo. S5 18; Kokomo, Ind. C16 17; Minnequa, Colo. C10 18; Pittsburg, Calif. C11 19; Rankin, Pa. A7 17; S. Chicago, Ill. R2 17; Sparrows Pt., Md. B2 17; Sterling, Ill. (7) N15 17; Worcester, Mass. A7 18; TIE WIRE, Automatic Baler (14½ Gu.) Iper 97 ib Net Box Coil No. 3150 AlabamaCity, Ala, R2 \$9,2 Atlanta A11 10 33	### FENCE POSTS Birmingham C15	Undersize Body (rolled thread)	Lackawanna, N.Y. B2 5.75 5.65 6.7225 Minnequa, Colo. C10 5.75 5.65 7.225 Steelton, Pa. B2 5.75 5.65 7.225 Steelton, Pa. B2 5.75 5.65 7.225 Williamsport, Pa. S19 6.75 5.65 7.225 Williamsport, Pa. S19 6.75 5.65 7.225 TIE PLATES Fairfield, Ala. T2 6.875 Gary, Ind. U5 6.875 Minnequa, Colo. C10 6.875 Minnequa, Colo. C10 6.875 Seattle B3 7.025 Steelton, Pa. B2 6.875 Torrance, Calif. C11 6.875 Steelton, Pa. B2 6.875 Torrance, Calif. C11 6.875 Seestile B3 15.85 SCREW SPIKES Fairfield, Ala. T2 7.25 Joliet, Ill. U5 7.25 Joliet, Ill. U5 7.25 Minnequa, Colo. C10 7.25 Steelton, Pa. B2 10.10 Marss AXLES AXLES Schicago, Ill. R2 10.10 Schicago, Ill. R2 10.10 Johnstown, Pa. B2 9.125 Voungstown R2 10.10
Bartonville, Ill. K4 9, 3: Buffalo W12 10.2 Chicago W13 9.2: Crawfordsville, Ind. M8. 9.3 Donora, Pa. A7 9.2:	Pittsburg, Calif. C11213† Rankin, Pa. A7193†	½ in. and smaller: 6 in. and shorter. 48.0 Larger diameters and	(1) Chicago base, (25) Bar mill bands, (26) Deld, in mill zone, 6.295c, (3) Merchant, (27) Bar mill sizes, (4) Reinforcing, (28) Bonderized.

STEEL

Pounds Per Ft	2 2 23/4 37c 58.5c 3.68 5.82 Galv* Blk Ga +27.25 +5.75 +22 +27.25 +5.75 +22 +27.25 +5.75 +22	376.5c 7.62 7.62 31v* Blk Galv* 2.5 +3.25 +20 2.5 +3.25 +20 2.5 +3.25 +20	arload discounts fr 3½ 92c 9.20 Blk Galv* +1.75 +18.5 +1.75 +18.5 +1.75 +18.5 (arload discounts fr	\$1.09 10.89 Blk Galv* +1.75 +18.5 +1.75 +18.5 +1.75 +18.5 +1.75 +18.5	5 \$1.48 14.81 Bik Galv* +2 +18.75 +2 +2 +18.75 +2 +18.75	\$1.92 19.18 Blk Galv* 0.5 + 16.25 0.5 0.5 + 16.25 0.5 + 16.25
Youngstown R2+12.25	+27.25 +5.75 +22	2.5 + 3.25 + 20	+1.75 +18.5	+1.75 +18.5	+2 +18.75	0.5 + 16.25
	76 5.5c 6.6c 0.24 Galv* Blk Ga + 25 + 10.5 + 32 + 22 + 8.5 + 32 + 24 + 10.5 + 32 + 22 + 8.5 + 32 + 33 + 34 + 34 + 35 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36	*** *** **** *** *** *** *** *** *** *	Carload discounts from the state of the stat	rom list, % 11.5c 1.13 Blk Galv* 5.25 +9 3.25 +11 5.25 +9 3.25 +11 +7.75 +22 4.25 +10 5.25 +9 5.25 +9 3.25 +11 5.25 +9 5.25 +9 5.25 +9 5.25 +9 5.25 +9 5.25 +9 5.25 +9	1 17c 1.68 Blk Galv* 8.75 + 4.5 6.75 + 6.5 8.75 + 4.5 6.75 + 6.5 4.25 + 17.5 7.75 + 5.5 8.75 + 4.5 6.75 + 6.5 4.25 + 17.5 7.75 + 5.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5 8.75 + 4.5	11/4 23c 2.28 Blk Galv* 11.25 + 3.75 9.25 + 5.75 11.25 + 3.75 11.25 + 3.75 9.25 + 5.75 10.25 + 6.25 11.25 + 3.75 11.25 + 3.75 10.25 + 6.25 11.25 + 3.75 11.25 + 3.75 11.25 + 3.75 11.25 + 3.75 11.25 + 3.75
Size—Inches List Per Ft Pounds Per Ft Aliquippa, Pa. J5 Alton, Ill. L1 Benwood, W. Va. W10. Etna, Pa. N2 Fairless, Pa. N3 Fontana, Calif. K1 Indiana Harbor, Ind. Y1 Lorain, O. N3 Sharon, Pa. M6 Sparrows Pt., Md. B2 Wheatland, Pa. W9 Youngstown R2, Y1 *Galvanized pipe discounts	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75 + 2.5 75 + 4.5 75 + 2.5 75 + 2.5 75 + 4.5 75 + 15.5 75 + 12.5 75 + 2.5 75 + 2.5 75 + 2.5 75 + 2.5 75 + 2.5	3 76.5c 7.62 Blk Galv* 13.75 + 2.5 13.75 + 4.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5 13.75 + 3.5 13.75 + 3.5 13.75 + 3.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5 13.75 + 2.5	3 ½ 92c 9.20 Blk Galv* 3.25 +13.5 1.25 +15.5 3.25 +13.5 1.25 +15.5 +9.75 +26.5 2.25 +14.5 1.25 +15.5 3.25 +13.5 3.25 +13.5	\$1.09 10.89 Blk Galv* 3.25 + 13.5 1.25 + 13.5 3.25 + 13.5 3.25 + 13.5 1.25 + 15.5 + 9.75 + 26.5 2.25 + 14.5 1.25 + 15.5 3.25 + 13.5 3.25 + 13.5

Stainless Steel

	Rei	oresenta	tive prices,	cents	per pound;	subject	to curre	ent lists	of extras	
						H.R.	Bars;			C.R.
				Forg-		Rods;	Struc-			Strip;
AI	\$1	Rere	olling—	ing	H.R.	C.F.	tural			Flat
	pe	Ingot	Slabs	Billets	Strip	Wire	Shapes	Plates		Wire
20		22.75	25.00		36.00		43.50	39.25	48.50	45.00
20		24.75	28.25	37.75	39.00	42.25	44.50	40.00	49.25	49.25
30		24.00	26.00	38.75	37.25	43.50	46.00	41.25	5 1.25	47.50
30		26.25	29.50	39.50	40.50	44.25	46.75	42.25	52.00	52.00
	2B	26.50	30.75	42.25	45.75	46.75	49.00	44.50	57.00	57.00
30			33.25	42.50		47.25	49.75	45.00	56.75	56.75
30		28.00	31.25	42.00	43.75	47.00	49.50	45.75	55.00	55.00
30	4L			49.75	51.50	54.75	57.25	53.5 0	62.75	62.75
30		29.50	34.75	44.00	47.50	47.00	49.50	46.25	58.75	58.75
30		32.00	36.25	49.00	50.25	54.75	57.75	55.25	63.00	63.00
30		41.25	47.50	60.00	64.50	66.25	69.50	66.00	80.50	80.50
31		51.50	59.50	81.00	84.25	89.75	94.50	87.75	96.75	96.75
31				80.50		89.75	94.50	87.75		104.25
31		41.25	47.50	64.50	68.50	71.25	75.75	71.75	80.75	80.75
31	6L			72.25	76.25	79.50	83.50	79.50	88.50	88.50
31	7	49.75	58.00	79.75	88.25	89.50	94.25	88.50	101.00	101.00
32	1	33.50	38.00	48.75	53.50	54.50	57.50	54.75	65.50	65.50
33	0			123.25		113.00	143.75	135.00	149.25	149.25
18	-8 CbTa	38.50	48.25	57.75	63.50	63.75	67.25	64.75	79.25	79.25
40				29.25		33.25	35.00	30.00	40.25	40.25
40		20.25	26.50	30.75	36.00	34.75	36.50	32.50	46.75	46.75
41	0	17.50	19.50	29.25	31.00	33.25	35.00	30.00	40.25	40.25
41	6			29.75		33.75	35.50	31.25	48.25	48.25
42			31.50	35.50	41.75	40.75	42.75	40.25	62.00	62.00
43		17.75	19.75	29.75	32.00	33.75	35.50	31.00	40.75	40.75
	0F			30.50		34.25	36.00	31.75	51.75	51.75
43	1		29.75	39.25		43.50	46.00	41.00	56.00	56.00
44	6			40.75	59.00	46.00	48.25	42.75	70.00	70.00
P	oducers A	re. All	egheny Lui	ilum S	teel Corp.:	America	n Steel	& Wire	Div., U.	S. Steel

Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadum-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; Calstrip Steel Corp.; G. O. Carlson Inc.; Carpenter Steel Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless & Strip Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company, Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co.; Subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steel Inc.; Union Steel Corp.; U. S. Steel Corp.; Tube Methods Inc.; Ulbrich Stainless Steel Inc.; Union Steel Corp.; Washington Steel Corp.; Seymour Mfg. Co.

Clad Steel

		Pla	tes		Sheets
		Carbon	Base		Carbon Base
	5%	10%	15%	20%	20%
Stainless					
302					37.50
304	26.05	28.80	31.55	34.30	39.75
304L	30.50	33.75	36.95	40.15	
316	38.20	42.20	46.25	50.25	58.25
316L	42.30	46.75	51.20	55.65	
316 Cb	49.90	55.15	60.40	65.65	
321	31.20	34.50	37.75	41.05	47.25
347	36.90	40.80	44.65	48.55	57.00
405	22.25	24.60	26.90	29.25	
410	20.55	22.70	24.85	27.00	
430	21.20	23.45	25.65	27.90	
Inconel	48.90	59.55	70,15	80.85	
Nickel	41.65	51.95	63.30	72.70	
Nickel, Low Carbon	41.95	52.60	63.30	74.15	
Monel	43.35	53.55	63.80	74.05	
					Carbon Base

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S18.

Tool Steel

 Grade
 \$ per lb
 Grade
 \$ per lb

 Reg. Carbon (W-1)...
 0.330
 V-Cr Hot Work (H-13)
 0.550

 Spec. Carbon (W-1)...
 0.385
 W-Cr Hot Work (H-12)
 0.530

 Oil Hardening (O-1)...
 0.505
 W Hot Wk. (H-21)
 1.425-1.44

 V-Cr Hot Work (H-11)
 0.505
 Hi-Carbon-Cr (D-11)...
 0.955

	– Grade by	/ Analysi:	s (%) ——		AISI	
W	Cr	V	Co	Mo	Designation	\$ per lb
18	4	1			Ť-1	1.840
18	4	2			T-2	2.005
13.5	4	3			T-3	2.105
18.25	4.25	1	4.75		T-4	2.545
18	4	2	9		T-5	2.915
20.25	4.25	1.6	12,95		T-6	4.330
13.75	3.75	2	5		T-8	2.485
1.5	4	1		8.5	M-1	1.200
6.4	4.5	1.9		5	M-2	1.345
6	4	3		6	M-3	1.590
Too	l steel p	roducers	include	: A4,	A8, B2, B	8, C4, C9,
C12.					, V2, and V	

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate.

					No 2 Malle- Besse-
		No. 2	Malle-	Besse-	No. 2 Malle- Besse- Basic Foundry able mer
771. 1 7 7 7	Basic	Foundry	able	mer	200 70 20 70 07 80
Birmingham District					Dullth 1-3
Birmingham R2		62.50	****		Erie, Pa. I-3
Birmingham U6		62.50**	66.50		Fontana, Calif. K1 75.00 75 50
Woodward, Ala. W15		62.50**** 70.20	66.50	* * * *	Geneva Utah C11 66.00 66.50
Omomiati, ded		10.20			Granite City, Ill. G4 67.90 68.40 68.90
Buffalo District					Ironton, Utah C11 66.00 66.50
	00.00	00 80	AW 00		Minnequa, Colo. C10
Buffalo H1, R2		66.50 66.50	67.00 67.00	67.50 67.50	Rockwood, Tenn. T3 62.50 66.50 Toledo, Ohio I-3 66.00 66.50 66.50 67.00
Tonawanda, N.Y. W12	66.00	66 50	67.00	67.50	Cincinnati, deld 72.94 73.44
Boston, deld	77.29	77.79	78.29		————
Rochester, N.Y., deld	69.02	69.52	70.02		*Phos. 0.70-0.90%; Phos. 0.30-0.69%, \$63.
Syracuse, N.Y., deld	70.12	70.62	71.12		**Phos. 0.70-0.90%; Phos. 0.30-0.69%, \$63.50.
					‡Phos. 0.50% up; Phos. 0.30-0.49%, \$63.50.
Chicago District					
Chicago I-3	66.00	66.50	66.50	67.00	PIG IRON DIFFERENTIALS
S. Chicago Ill. R2	66.00	66.50	66.50	67.00	Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof
S.Chicago, Ill. W14	66.00		66.50	67.00	over base grade, 1.75-2.25%, except on low phos. iron on which base
Milwaukee, deld		69.52 74.52	69.52 74.52	70.02	is 1.75-2.00%.
Maskegon, Mich., deld		14.02	14.02	* * * *	Manganese: Add 50 cents per ton for each 0.25% manganese over 1%
Cleveland District					or portion thereof.
Cleveland R2, A7	66.00	66.50	66.50	67.00	TO THE PURPLE OF SHAPPY MICHON COME TO
Akron, Ohio, deld.	69.52	70.02	70.02	70.52	BLAST FURNACE SILVERY PIG IRON, Gross Ton
3812 432					(Base 6.01-6.50% silicon; add 75c for each 0.50% silicon or portion
Mid-Atlantic District					thereof over the base grade within a range of 6.50 to 11.50%; starting
Birdsboro, Pa. B10	68.00	68.50	69.00	69.50	with silicon over 11.50% add \$1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add \$1 for each 0.50% Mn over 1%)
Chester, Pa. P4 Swedeland, Pa. A3	68.00	68.50	69.0 0		Jackson, Ohio I-3, J1\$78.00
NewYork, deld.		68.50	69.00	69.50	Buffalo H1
Newark, N.J., deid.	72.69	75.50 73.19	76.00 73.69	74.19	LIMATOR AND THE TOTAL CONTRACTOR OF THE CONTRACT
Philadelphia, deld	70.41	70.91	71.41	71.99	ELECTRIC FURNACE SILVERY IRON, Gross Ton
Troy, N.Y. R2		68.50	69.00	69.50	
Trible 2 1 . The state of					(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1.25 for each 0.50% Mn over 1%; \$2 per gross ton premium for 0.045% max P)
Pittsburgh District					CalvertCity, Ky. P15 \$99.00
NevilleIsland, Pa. P6	66.00	66.50	66.50	67.00	NiagaraFalls, N.Y. P15 99.00
Pittsburgh (N&S sides),					Keokuk, lowa Open-hearth & Fdry, \$9 freight allowed K2 103.50
Aliquippa, deld	8.916.6	67.95	67.95	68.48	Keokuk, Iowa O.H. & Fdry, 12½ lb piglet, 16% Si, max fr'gt
Lawrenceville Homestead,		67.60	67.60	68.13	allowed up to \$9, K2 106.50
Wilmerding, Monaca, Pa., deld.		68.26	68.26	68.79	
Verona Trafford.Pa., deld.	68.29	68.82	68.82	69.35	LOW PHOSPHORUS PIG IRON, Gross Ton
Brackenridge, Pa., deld.		69.10	69.10	69.63	Lyles, Tenn. T3 (Phos. 0.035% max)
Midland, Pa. C18	66.00				Rockwood, Tenn. T3 (Phos. 0.035% max)
Youngstown District					Troy, N.Y. R2 (Phos. 0.035% max)
					Philadelphia, deld
Hubbard, Ohio Y1 Sharpsville, Pa. S6	66.00		66.50	27 00	Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max) 71.00 Duluth I-3 (Intermediate) (Phos. 0.036-0.075%) 71.00
Youngstown Y1	00.00		66.50 66.50	67.00	Erie, Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max) 71.00
Mansfield, Ohio, deld.	71.30		71.80	72.30	NevilleIsland, Pa. P6 (Intermediate) (Phos. 0.036-0.075% max) 71.00
				12.00	

Steel Service Center Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Denver, Moline. Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Birmingham, Chattanooga, Houston, Seattle, no charge.

			EETS-		STRIP		BARSS			Standard	
	Hot- Rolled	Cold-	Gaiv.	Stainless	Hot-	H.R.	05.01.4	H.R. Alloy	Structural	PLA.	
Atlanta	8.59§	Rolled 9.86§	10 Ga.† 10.13	Type 302	Rolled* 8.91	Rounds 9,39	C.F. Rds.‡ 13.24 #	4140††5	Shapes 9.40	Carbon 9,29	Floor 11.21
Baltimore Birmingham Boston Buffalo	8.55 8.18 10.07 8.40	9.25 9.45 11.12 9.60	9.99 10.46 11.92 10.85	53.50 55.98	9.05 8.51 12.17 8.75	9.45 8.99 10.19 9.15	11.85 # 13.30 # 11.45 #	15.48 15.64 15.40	9.55 9.00 10.64 9.25	9.00 8 89 10.27 9.20	10.50 10.90 11.95 10.75
Chattanooga Chicago Cincinnati Cleveland	8.35 8.25 8.43 8.36	9.69 9.45 9.51 9.54	9.65 10.90 10.95 11.00	53.00 53.43 52.33	8.40 8.51 8.83 8.63	8.77 8.99 9.31 9.10	10 46 9.15 11.53 # 11.25 #	15.05 15.37 15.16	8.88 9.00 9.56 9.39	8.80 8.89 9.27 9.13	10.66 10.20 10.53 10.44
Dallas Denver Detroit	8.80 9.40 8.51	9.30 11.84 9.71	12.94 11.25	56.50	8.85 9.43 8.88	8.80 9.80 9.30	11.19 9.51	15.33	8.75 9.84 9.56	9.15 9 76 9.26	10.40 11.08 10.46
Erie, Pa	8.35	9.45	9.9510	****	8.60	9.10	11.25		9.35	9.10	10.60
Houston	8.40	8.90	10.29	52.00	8.45	8.40	11.60	15.75	8.35	8.75	10.10
Jackson, Miss	8.52	9.79	40.00	****	8.84	9.82	10.68		9.33	9.22	11.03
Los Angeles	8.702	10.802	12.20	57.60	9.15	9.102	12.952	16.35	9.002	9.102	11.302
Memphis, Tenn. Milwaukee Moline, Ill	8.59 8.39 8.55	9.80 9.59 9.80	11.04	* * * *	8.84 8.65 8.84	9.32 9.13 8.95	11.25 # 9.39 9.15	15.19	9.33 9.22 8.99	9.22 9.03 8.91	10.86 10.34
New York Norfolk, Va	9.17 8.65	10.49	11.30	53.08	9.64 9.15	9.99 9.30	13.25 # 12.75	15.50	9.7 4 9.65	9.77 9.10	11.05 10.50
Philadelphia Pittsburgh	8.20 8.35	9.25 9.55	10.61 10.90	52,71 52.00	9.25 8.61	9.40 8.99	11.95# 11.25#	15.48 15.05	9.10 9.00	9.15 8.89	10.40** 10.20
Richmond, Va	8.65	****	10.79		9.15	9.55			9.65	9.10	10.60
St. Louis St. Paul San Francisco Seattle South'ton, Conn Spokane	8.63 8.79 9.65 10.30 9 07 10.30	9.83 10.04 11.10 11.55 10.33 11.55	11.28 11.49 11.40 12.50 10.71 12.50	55.10 56.52 57,38	8.89 8.84 9.75 10.25 9.48 10.75	9.37 9.21 10.15 10.50 9.74 11.00	9.78 9.86 13.60 14.70	15.43 16.25 16.80 ⁸	9.48 9.38 9.85 10.20 9.57	9.27 9.30 10.00 10.10 9.57	10.58 10.49 12.35 12.50 10.91
Washington	9.15	• • • •	• • • •	****	9.65	10.05	14.70 12.50	16.80	10.20 10.15	10.10 9.60	13.00 11.10

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; \$42 in. and under; **% in. and heavier; ††as annealed; ‡†% in. to 4 in. wide, inclusive; #net price, 1 in. round C-1018.

Base quantities 2000 to 4999 lb except as noted; cold-finished bars. 2000 lb and over except in Seattle, 2000 to 3999 lb; stainless sheets, 8000 lb except in Chicago, New York. Boston, Seattle, 10.000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Seattle, 30.000 lb and over; 2—30,000 lb; 3—1000 to 4999 lb; 5—1000 to 1999 lb; 10—2000 lb and over.

Refractories

Fire Clay Brick (per 1000 pieces*)

Fire Clay Brick (per 1000 pieces*)

High-Heat Duty: Ashland. Grahn, Hayward, Hitchens, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwens-ville, Lock Haven, Lumber, Orviston. West Decatur Winburne. Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parrail, Portsmouth, Ohio, Ottawa, Ill Stevens Pottery, Ga., Canon City, Colo., \$140; Salina, Pa., \$145; Niles, Ohio, \$138; Cutler, Utah, \$175.

Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, \$185; Stevens Pottery, Ga., \$195; Cutler, Utah, \$248.

\$248.

Silica Brick (per 1000 pieces*)

Standard: Alexandria. Claysburg, Mt. Union, Sproul. Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., St. Louis, \$158: Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., \$163; E. Chicago, Ind., Joliet, Rockdale, Ill., \$168; Cannon City, Colo., \$173; Lehi, Utah, \$183; Los Angeles. \$185.

Sils, Saper-Duty: Sproul, Hawstone, Pa., Niles, Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athéns, Tex.. \$158; Morrisville, Hays, Latrobe, Pa., \$163; E. Chlcago, Ind., St. Louis, \$168; Canon City, Colo., \$183; Curtner, Calif., \$185.

Semisiliea Brick (per 1000 pieces*)
Woodbridge, N. J., Canon City, Colo., \$140; Philadelphia, Clearfield, Pa., \$145.

Ladle Brick (per 1000 pieces*)
Dry Pressed: Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, \$96.75; Clearfield, Pa., Portsmouth, Ohio, \$102.

High-Alumina Brick (per 1000 pieces*)

50 Per Cent: St. Louis, Mexico, Vandalia, Mo., Danville, Ill., \$253; Philadelphia, \$265; Clearfield, Pa., \$230; Orviston, Snow Shoe, Pa., \$260, 60 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$310; Danville, Ill., \$313; Clearfield, Orviston, Snow Shoe, Pa., \$320; Philadelphia, \$325.

70 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$350; Danville, Ill., \$353; Clearfield, Orviston, Snow Shoe, Pa., \$360; Philadelphia, \$365.

Sleeves (per 1000)

Reesdale, Johnstown, Bridgeburg, St. Charles, Pa., St. Louis, \$310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, St. Charles, Pa., St. Louis, \$310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, St. Charles, Pa., St. Louis, \$310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, St. Charles, Pa., \$234.

Dolomite (per net ton)
Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, \$16.75; Thornton, McCook, Ill., \$17; Dolly Siding, Bonne Terre, Mo., \$15.60.

Magnesite (per net ton)
Domestic, dead-burned, ½ in. grains with fines: Chewelah, Wash., Luning, Nev., \$46; % in. grains with fines: Baltimore, \$73.

•—9 in. x 4½ x 2.50 sts.

Fluorspar

Metallurgical grades, f.o.b. shipping point in Ill.. Ky., net tons, carloads, effective CaF₂ content 72.5%, \$37.\$41; 70%, \$36.\$40; 60%, \$33.\$36.50. Imported, net ton, f.o.b. cars point of entry, duty paid, metallurgical grade; European, \$30.\$33, contract; Mexican, all rail, duty paid, \$25; barge, Brownsville, Tex., \$27.

Bronze, 5000-lb

Electrodes

Threaded with nipple; unboxed, f.o.b. plant

GRAPHITE

Inc	Per			
Diam	Diam Length			
2 2 ¹ / ₂ 3 4 5 ¹ / ₂ 6 7 8, 9, 10 12 14 16 17 18 20 24	24 30 40 40 40 60 60 60 72 60 72 60 72 72 84	100 lb \$64.00 41.50 39.25 37.00 36.50 33.25 29.75 29.50 28.25 27.25 27.25 27.00 26.50 27.25		
	CARBO	N		
8 10 12 14 14 17 17 20 24 24 24 30 35, 40	60 60 60 72 60 72 90 72, 84 96 84 110	14.25 13.80 14.75 12.55 12.65 12.10 11.55 11.95 12.10 12.00 11.60 12.50		

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

Sponge Iron, domestic and foreign, 98% Fe, min. trucklots, freight allowed east of Mis-sissippi River:

100 mesh, bags.... 11.25 100 mesh, pails 9.10§ 40 mesh, bags8.10††

Electrolytic Iron,

Melting stock, 99.87%
Fe, irreg. fragments,
% in. x 1.3 in. . . . 28.75
1.3 in. 28.75 (In contract lots of 240 tons price is 22.75c)

Annealed, 99.5% Fe .. 36.50 Unannealed (99+% Fe) 36.00

Unannealed (99+% Fe) (minus 325 mesh) . . 59.00

Powder Flake (minus 16, plus 100 mesh).. 29.00

Carbonyl Iron:
98.1-98.9%, 3 to 20 microns, depending on grade, 93.00-290.00 in standard 200-lb containers; all minus 200 mesh,

Aluminum: Atomized, 500-lb drum, freight allowed, cl. 38.50; ton lots 40.50.

Antim	ony.	500-lb	lots	42.00
Brass,	500	00-lb 3	84.10-	50.70†

lots52.20-56.20† Copper, electrolytic .. 14.25° Copper, reduced 14.25° Lead 7.50*

Manganese. Electrolytic:
Minus 50 mesh 43.00

Nickel 80.60 Nickel-Silver, 5000-lb lots52.70-57.10†

Phosphor-Copper, 5000-lb lots 64.60

Copper (atomized) 5000-lb lots 45.10 Solder 7.00*

Stainless Steel, 304 ... \$0.89 Stainless Steel, 316 ... \$1.07 Tin14.00° Zinc, 5000-lb lots 19.00-32.20\$

Chromium, electrolytic 99.8% Cr. min metallic basis

*Plus cost of metal. †Depending on composition, ‡Depending on mesh. \$Cutting and scarfing grade. *Depending on price of ore, ††Welding grade.

(Base per 100 lb, landed, duty paid; based on current ocean rates with any rise for buyer's acc't. Source of shipment: Western Europe) **Imported Steel** North Great South Guif

	Atlantic	Lakes	Atlantic	Coast	Coast
Deformed Bars, Intermediate, ASTM-A 305	\$5.80	\$5.80	\$5.75	\$5.65	\$6.11
Bar Size Angles	5.30	5.30	5.25	5.10	5.56
Structural Angles	5.68	5.68	5.63	5.53	5.98
I-Beams	5.31	5.31	5.31	5.21	5.65
Channels	5.26	5.26	5.26	5.16	5.60
Plates (basic bessemer)	5.65	5.65	5.60	5.50	5.96
Sheets, H.R.	8.30	8.30	8.30	8.10	8.60
Sheets, Galvanized, 20 Ga., 36 in. x 96 in	9.52	9.52	9.47	9.37	9.83
Sheets, Galv. (in coils) 20 Ga., 48 in. wide	9.58	9.58	9.53	9.43	9.89
Sheets, C.R. (drawing quality)	8.75	8.75	8.75	8.60	9.12
Furring Channels, C.R., 1000 ft, 34 x 0.30 lb					
per ft	25.76	25.76	25.64	25.64	26.51
Barbed Wire (†)	6.68	6.68	6.58	6.52	6.75
Merchant Bars	5.90	5.90	5.85	5.65	6.11
Hot-Rolled Bands	7.15	7.15	7.15	7.15	7.55
Wire Rods. Thomas Commercial No. 5	5.70	5.70	5.70	5.50	5.85
Wire Rods, O.H. Cold Heading Quality No. 5.	6.30	6.30	6.30	6.20	6.55
Bright Common Wire Neils (8)	7.65	7.65	7.65	7.65	7.95

†Per 82 lb net reel. §Per 100-lb kegs, 20d nails and heavier.

Ores

(I Inces effective at start of the 1000 supplies
season, subject to later revision, gross ton
51 50% iron natural, rail of vessel, lower lake
ports.)
Mesabi bessemer\$11.60
Mesabi nonbessemer
Old Range hessemer 11 85
Old Range bessemer
Open hearth lumn 19 76
Open-hearth lump 12.70 High phos 11.45
The foregoing prices are based on upper lake
rail freight rates, lake vessel freight rates,
handling and unleading shares and taxes
handling and unloading charges, and taxes thereon, which were in effect Jan. 1, 1959,
thereon, which were in effect Jan. 1, 1959,
and increases or decreases after that date are
absorbed by the seller.
Eastern Local Iron Ore
Cents per unit, deld, E. Pa.
New Jersey, concentrates nom.
Foreign Iron Ore
Cents per unit, c.i.f. Atlantic ports
Swedish basic, 65%
Brazilian iron ore, 68.5% 22.60
Tungsten Ore
Net ton, unit
Foreign wolframite, good commercial
quality \$12.50-13.00°
Domestic, concentrates f.o.b. milling
points
*Before duty. †Nominal.
Manganese Ore
Mn 46-48%, Indian 91.5c-96.5c, nom. per long
ton unit, c.i.f. U. S. ports, duty for buyer's
account.
Chrome Ore
Gross ton, f.o.b. cars New York, Philadel-
phia, Baltimore, Charleston, S. C., plus ocean
freight differential for delivery to Portland,
Oreg., Tacoma, Wash.
Indian and Rhodesian
48% 3:1\$42.00-44.00†
48% 2.8:1 38.00-40.00†
48% no ratio 29.00-31.00†
South African Transvaai
10 7E D1 00

Lake Superior Iron Ore (Prices effective at start of the 1959 shipping

50-55% \$2.25-2.40
60-65% \$2.25-2.40

Vanadium Ore
Cents per lb V₂O₅

tNominal.

Metallurgical Coke

Beehive Ovens	
Connellsville, Pa., furnace\$14.75-1	5.25
Connellsville, Pa., foundry 18.00-1	8.50
Oven Foundry Coke	
Birmingham, ovens\$3	0.35
Cincinnati, deld 3	
Buffalo, ovens	
Detroit, ovens 3	
Pontiac, Mich., deld 3	3 95
Saginaw, Mich., deld 3	
Erie, Pa., ovens 3	
Everett, Mass., ovens:	
New England, deld33	.55*
Indianapolis, ovens 3	
Ironton, Ohio, ovens 3	
Cincinnati, deld 3	
Kearny, N. J., ovens 3	
Milwaukee, ovens 3	
Neville Island (Pittsburgh), Pa., ovens, 3	

*Within \$5.15 freight zone from works.

Coal Chamicale

Coal Chemicais
(Representative prices)
Cents per gal f.o.b, tank cars or tank trucks,
plant.
Pure benzene 31.00
Xylene, industrial grade 29.00
Creosote 24.00
Naphthalene, 78 deg 5.00
Toluene, one deg (del. east of Rockies), 25.00
Cents per lb, f.o.b. tank cars or tank trucks,
deld.
Phenol, 90 per cent grade 14.75
Per net ton bulk, f.o.b. cars or trucks, plant
Ammonium sulfate, regular grade\$32.00

Ferroalloys

MANGANESE ALLOYS

Spiegeleisen: Carlot, per gross ton, Palmerton, Neville Island, Pa. 21-23% Mn, \$105; 19-21% Mn, 1-3% Si, \$102.50; 16-19% Mn, \$100.50.

Standard Ferromanganese: (Mn 74-76%, C 7% approx) base price per net ton, \$245, Johnstown, Duquesne, Sheridan, Neville Island, Pa.; Alloy, W. Va.; Ashtabula, Marietta, O.; Shefield, Ala.; Portland, Oreg. Add or subtract \$2 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively (Mn 79-81%). Lump \$253 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add \$2.60 for each 1% above 81%; subtract \$2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

High-Grade Low-Carbon Ferromanganese: (Mn 85-95%). Carload, lump, bulk, max 0.07% C, 35.1c per lb of contained Mn, carload packed 36.4c, ton lots 37.9c, less ton 39.1c. Delivered. Deduct 1.5c for max 0.15% C grade from above prices, 3c for max 0.03% C, 3.5c for max 0.5% C, and 6.5c for max 75% C—max 7% Si. Special Grade: (Mn 90% min, C 0.07% max. P 0.06% max). Add 2.05c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.25-1.5%, Si 1.5% max). Carload, lump, bulk, 25.5c per lb of contained Mn; packed, carload 26.8c, ton lot 28.4c, less ton 29.6c.

Electrolytic Manganese Metal: Min carload, bulk, 33.25c; 2000 lb to min carload, 36c; less ton, 38c; 50 lb cans, add 0.5c per lb. Premium for hydrogen-removed metal, 0.75c per lb. Prices are f.o.b. cars, Knoxville, Tenn., freight allowed to St. Louis or any point east of Mississippi River; or f.o.b. Marietta, 0., freight allowed.

Silicomanganese: (Mn 65-68%). Carload, lump, bulk, 1.50% C grade, 18.5-21% Sl, 12.8c per lb of alloy. Packed, c.l. 14c, ton 14.45c, less ton 15.45c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. For 2% C grade, Sl 16-18.5%, deduct 0.2c from above prices. For 3% grade, Sl 12.5-16%, deduct 0.4c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot, 2" x D, \$1.50 per lb of contained Ti; less ton to 300 lb, \$1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lot \$1.35, less ton to 300 lb \$1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract min c.l. \$250 per ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi River and north of Baltimore and St. Louis. Spot \$255.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4%). Contract, c.l. \$300 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed. Spot, \$305.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: C.l. lump, bulk 28.75c per lb of contained Cr. Delivered.

Charge Chrome 1: Cr 63%, C 6% max, Si 7% max, 22c. Charge Chrome 2: Cr 50-59%, C 8% max, Si 6% max, 23c. Carload, lump, bulk, per lb Cr.

Refined Chrome 1: Cr 50-59%, C 5% max, Si 2% max, 25c. Refined Chrome 2: Si 12% max, 24c. Carload, lump, bulk, per lb Cr.

Low-Carbon Ferrochrome: Cr 63-66% (Simplex), carload, lump, bulk, C 0.025% max, 36.75c per lb contained Cr; 0.010% max, 37.75c. Delivered.

Cr 67-71%, carload, lump, bulk, 0.025% max, 39.75c; 0.05% max, 39.00c; 0.10% max, 38.50c; 0.20% max, 38.50c; 0.50% max, 38.00c; 1.0% max, 37.75c; 1.5% max, 37.50c; 2.0% max, 37.25c. Delivered.

Foundry Ferrochrome, High-Carbon: (Cr 62-66%, C 5-7%, Si 7-10%). C.l., 2" x D, bulk 30.8c per lb of contained Cr. Packed, c.l. 32.4c, ton 34.2c, less ton 35.7c. Delivered. Spot, add 0.25c.

Foundry Ferrosilicon Chrome: (Cr 50-54%, Si 28-32%, C 1.25% max). 8M x D, carload bulk 20.05c per lb of alloy, caroad packed, 21.25c, ton lot 22.50c; less ton lot 23.70c. Delivered. Spot, add 0.25c.

Ferrochrome-Silicon: Cr 39-41%, Si 42-45%, C 0.05% max or Cr 33-36%, Si 45-48%, C 0.05% max. Carload, lump, bulk, 3" x down and 2" x down, 28.25c per lb contained Cr, 14.60c per lb contained Si, 0.75" x down 29.40c per lb contained Cr, 14.60c per lb contained Si.

Chromium Metal, Electrolytic: Commercial grade (Cr 99.8% min, metallic basis, Fe 0.2% max). Contract, carlot, packed, 2" x D plate (about ½" thick) \$1.15 per lb, ton lot \$1.17, less ton lot \$1.19. Delivered. Spot, add 5c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth grade (V 50-55%, Si 8% max, C 3% max). Contract, any quantity, \$3.20 per lb of contained V. Delivered. Spot, add 10c. Special Grade: (V 50-55% or 70-75%, Si 2% max, C 0.55% max) \$3.30. High Speed Grade: (V 50-55% or 70-75%, Si 1.50% max, C 0.20% max) \$3.40.

Grainal: Vanadium Grainal No. 1 \$1.05 per lb; No. 79, 50c, freight allowed.

SILICON ALLOYS

50% Ferrosilicon: Carload, lump, bulk, 14.6c per lb contained Si. Packed, c.l. 17.1c, ton lot 18.55c, less ton 20.20c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max). Add 1.45c to 50% ferrosilicon prices.

65% Ferrosilicon: Carload, lump, bulk, 15.75c per lb contained silicon. Packed, c.l. 17.75c, ton lot 19.55c, less ton 20.9c. Delivered. Spot, add 0.35c.

75% Ferrosilicon: Carload, lump, bulk, 16.9c per lb of contained Si. Packed, c.l. 18.8c, ton lot 20.45c, less ton 21.7c. Delivered. Spot, add 0.3c.

90% Ferrosilicon: Carload, lump, bulk, 20c per lb of contained Sl. Packed, c.l. 21.65c, ton lot 23.05c, less ton 24.1c. Delivered. Spot, add 0.25c.

Silicon Metal: (98% min Sl, 1.00% max Fe, 0.07% max Ca). C.l. lump, bulk, 21.5c per lb of Si. Packed, c.l. 23.15c, ton lot 24.45c, less ton 25.45c. Add 0.5c for max 0.03% Ca grade. Add 0.5c for 0.50% Fe grade analyzing 98.25% min Sl.

Alsifer: (Approx 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.85c per lb of alloy; ton lot, packed, 10.85c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, C 0.20% max). Contract, c.l. lump, bulk, 9.25c per lb of alloy. Packed, c.l. 10.45c, ton lot 11.6c, less ton 12.45c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max). Carload bulk 26.25c per lb of alloy, carload, lump, packed 27.25c, ton lot 28.4c, less ton 29.65c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: 100 lb or more packed (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more 1" x D, \$1.20 per lb of alloy; less than 100 lb \$1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over are as follows: Grade A (10-14% B) 85c per lb; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

Borosil: (3 to 4% B, 40 to 45% Si). Carload, bulk, lump, or 3" x D, \$5.25 per lb of contained B. Packed, carload \$5.40, ton to c.l. \$5.50, less ton \$5.60. Delivered.

Carbortam: (B 1 to 2%). Lump, carload \$320 per ton, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrottanium.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Carload, lump, bulk 23c per lb of alloy, carload packed 24.25c, ton lot 26.15c, less ton 27.15c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca. 30-33%, Si 60-65%, Fe 1.5-3%). Carload, lump, bulk 24c per lb of alloy, carload packed 25.65c, ton lot 27.95c, less ton 29.45c. Delivered. Spot, add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx 3% lb each and containing 2 lb of Cr). Carload, bulk 19.60c per lb of briquet, in bags 20.70c; 3000 lb to c.l. pallets 20.80c; 2000 lb to c.l. in bags 21.90c; less than 2000 lb in bags 22.80c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx 3 lb and containing 2 lb of Mn). Carload, bulk 14.8c per lb of briquet; c.l., packed, bags 16c; 3000 lb to c.l., pallets 16c; 2000 lb to c.l., bags 17.2c; less ton 18.1c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx 3½ lb and containing 2 lb of Mn and approx ½ lb of Si). C.l. bulk 15.1c per lb of briquet; c.l. packed, bags 16.3c, 3000 lb to c.l., palest 16.3c; 2000 lb to c.l., bags 17.5c; less ton 18.4c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx 5 lb and containing 2 lb of Si and small sizes, weighing approx 2½ lb and containing 1 lb of Si). Carload, bulk 8c per lb or briquet; packed, bags 9.2c; 3000 lb to c.l., pallets 9.6c; 2000 lb to c.l.; bags 10.8c; less ton 11.7c. Delivered. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each). \$1.49 per lb of Mo contained, f.o.b. Langeloth, Pa.

Titanium Briquets: Ti 98.27%, \$1 per lb, f.o.b. Niagara Falls, N. Y.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%). 5000 lb W or more \$2.15 per lb (nominal) of contained W. Delivered.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Si 8% max, C 0.1% max). Ton lots 2" x D, \$3.45 per lb of contained Cb; less ton lots \$3.50 (nominal). Delivered.

Ferrotantalum Columbium: (Cb 40% approx, Ta 20% approx, and Cb plus Ta 60% min, C 0.30% max). Ton lots 2" x D, \$3.05 per lb of contained Cb plus Ta, delivered; less ton lots \$3.10.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Carlot bulk 19.25c per lb of alloy, c.l. packed ½ in. x 12 M 20.00c, ton lot 21.15c, less ton 22.40c. Delivered. Spot, add 0.25c

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 20c per lb of alloy, ton lot 21.1oc; 'ess ton lot 22.4c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 18.45c per lb of alloy; ton lot 19.95c; less ton lot 21.20c, f.o.b. Niagara Falls, N. Y.; freight allowed to St.

Simanal: (Approx 20% each Si, Mn, Al; bal Fe). Lump, carload, bulk 19.25c. Packed c.l. 20.25c, 2000 lb to c.l. 21.25c; less than 2000 lb 21.75c per lb of alloy. Delivered.

Ferrophosphorus: (23-25% based on 24% P content with unitage of \$5 for each 1% of P above or below the base). Carload, bulk, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., \$120 per gross ton.

Ferromolybdenum: (55-75%). Per lb of contained Mo in 200-lb container, f.o.b. Langeloth and Washington, Pa., \$1.76 in all sizes except powdered which is \$1.82.

Technical Molybdic-Oxide: Per lb of contained Mo., in cans, \$1.47; in bags, \$1.46, f.o.b. Langeloth and Washington, Pa.



The Big Bite from Blaw-Knox... 680 cubic feet at one time

Custom-built at Blaw-Knox this huge clamshell bucket lifts enough coal in one bite to heat a seven room house located in a northern climate for a period of two years.

This four-rope, geared hinge, corner bar type clamshell is the largest of more than 400 varieties produced by Blaw-Knox that can be shipped completely assembled. Larger buckets must be delivered in sub-assemblies.

Capacity for any job has become a custom with Blaw-Knox. Every day, buckets designed and built at Blaw-Knox are performing profitably on the "tough" jobs all over the world.

A Blaw-Knox Bucket Engineer will be glad to help you select the bucket best suited to your operation. Contact him today or write for your copy of Blaw-Knox Bulletin number 2392.

BLAW-KNOX COMPANY

Blaw-Knox Equipment Division Pittsburgh 38, Pennsylvania

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tremely high concentricity is maintained by means of the automatic screw machine method. Any thread size, right or left hand. Commercial steel, SAE 1045 and SAE 4140. BUYERS GUIDE Send for your copy of the Acimet large nut buy-

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ers guide. Contains complete specifications and prices on Acimet heavy semi-finished and new finished hex nuts milled from the bar.

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Scrap Displays Signs of Strength

STEEL's index on No. 1 heavy melting rises another \$1 a ton to \$36.50 despite threatened strike. Scrap use to increase as pig iron output is curtailed

Serap Prices, Page 142

- Pittsburgh—Relatively little scrap is moving, but prices of several grades are up \$1 or \$2 a ton. Because of the strike threat, mills are specifying that shipments must reach them no later than June 26. Dealers are reluctant to sell for two reasons: 1. If there's no strike, they assume that steelmaking will continue at a fairly high level in July and that mills will need more scrap. 2. If there is a strike, they believe that steelmakers will reline many of their blast furnaces before resuming production. With hot metal output curtailed, they'll have to use more scrap.
- Philadelphia—Strong export demand has pushed up the market on No. 1 heavy melting steel to \$38, delivered. No. 2 heavy melting is

- also higher at \$32, delivered, as are No. 2 bundles at \$24 and No. 1 busheling at \$38. Short shoveling turnings also are up at \$24-\$25, heavy turnings at \$33-\$34, and couplers, springs, and wheels at \$44.
- New York Brokers' buying prices are unchanged. While domestic demand for steel scrap is easy, export business is sufficiently active to sustain the market. In other grades spot demand has little direct bearing, but domestic consumers are taking enough tonnage, especially in cast and stainless specialties, to keep prices on an even keel.
- Chicago—Activity in the scrap market is at a standstill and is expected to continue so until the steel industry's wage contract negotia-

tions are resolved. Mills have stopped buying, and broker-dealer transactions have ceased. The price structure is stationary.

• Cleveland — Steelmakers have started to cut off scrap shipments not wishing to get caught with unaloaded cars on track in event of a strike. They don't want to pay unnecessary demurrage charges. Some mills set June 15 as a cutoff date; others took in scrap through June 20.

Despite the threatened strike, the market tone is a little stronger; some dealers and brokers feel that curtailed blast furnace operations will result in heavier use of scrap.

• Detroit — The market continues quiet as brokers and dealers await the outcome of the steel labor negotiations. Prices are a bit softer, but this is based mainly on dealer activity. About 20 or 25 cars of sheet clips supposedly were passed up by local brokers and finally purchased by a dealer at several dollars under current prices. Rail lists went a bit lower than industrial lists, which also indicates softness.



OWEN'S exclusive, patented, independent tine action assures a more powerful grip...and larger loads...as each tine closes independently until the material is in the tremendous grasp of all four tines.

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BRANCHES: New York • Philadelphia • Chicago

BRANCHES: New York • Philadelphia • Chicago Berkeley, Calif. • Fort Lauderdale, Fla







The Chrysler Corp. last week denied a published report that it had offered a Detroit mill 5000 to 6000 tons of No. 1 bundles for \$41 and had been turned down.

- Buffalo—Cast scrap prices declined \$2 to \$3 a ton last week on small orders by foundries. The easiness is contrary to the recently developed strength in the steel mill grades, but cast prices, it's pointed out, had risen beyond their normal range from steel scrap quotations.
- Cincinnati—The market is quiet, and prices are firm. New strength in the industrial lists has encouraged dealers' hopes of an early advance. Shipments to most mills are being cut off in preparation for a strike July 1. One district mill is unaffected by the current labor negotiations.
- St. Louis—Prices are still firm but the market is quiet. Mills still take what is offered them but they are not pressing for material. Vacations are slowing the scrap movement. Plenty of scrap is available, but the market is more or less on dead center pending the outcome of steel labor negotiations.
- Birmingham Recent price increases, and the approaching end of the steel labor contracts are causing a better flow of scrap. Still, dealers report scarcities of some items because of slower intake.

Some consumers are reported buying outside the district, making special deals to get the grades they need. Exporters at some southern ports are reported paying \$38 for No. 1 heavy melting, and \$35 for No. 2 heavy melting.

• Houston—The Lone Star (Tex.) mill has contracted for limited tonnages of No. 1 and No. 2 heavy melting steel, and No. 2 bundles for shipment during the June 15-July 15 period, at prices unchanged from its previous order. The Houston mill remains out of the market, and will purchase no scrap until after the steel labor issue is resolved. The Lone Star mill will not be affected by a July 1 strike, its contract not expiring until Sept. 7.

Mexican demand for Texas scrap is strong. Orders are difficult to fill because of a slowdown in overthe-scale traffic. Some export buying has been reported in Beaumont, Lake Charles, and Houston.

Demand for cast scrap has eased. Two major East Texas consumers have withdrawn from the market, and Houston consumers continue to live off inventories.

• Los Angeles — Collections have slowed down, and yard inventories are declining, but prices are unchanged. The slackening is attributable to an expected cutoff of shipments by the mills as they get ready for a strike July 1.

- San Francisco—Exports are keeping the steel scrap market alive. Two cargoes a month are leaving this port for Japan. But even without this steady foreign demand, it's doubted if prices on the steel grades would fall much under present levels because of handling costs.
- Seattle—The market is awaiting developments on the steel labor front. Little material is moving, mills depending on their inventories. Foreign buyers are also postponing commitments until the domestic price trend is more clearly indicated.

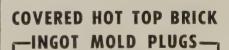
Daily Scrap Consumption In April Sets Record

Consumption of purchased ferrous scrap by domestic steel mills and foundries during April declined slightly from the March level, reports the Institute of Scrap Iron & Steel Inc. The total for the month was estimated at 2,740,000 gross tons vs. 2,839,000 in March and 2,323,000 in February. Consumption in the first four months this year was 9,990,000 tons vs. 6,156,-258 in the like 1958 period.

Receipts of purchased scrap in April rose to 2,749,000 gross tons from the March total of 2,862,000.

Domestic consumption, both home and purchased scrap, during April declined from 6,677,000 tons in March to 6,638,000. Daily consumption, though, was at a record level of 221,000 tons. Steel mill consumption during the month was 5,308,000 tons, while foundry use was estimated at 1,330,000 tons.

(Please turn to Page 147)





EUREKA

FIRE BRICK WORKS
MT. BRADDOCK, FAYETTE CO., PA.
DUNBAR, PA.
BR-7-4213

Iron and Steel Scrap	Consumer prices per gross ton, STEEL, June 10, 1959. Changes s		brokers' commission, as reported to:
CORREST MAKING SCRAD	CLEVELAND	PHILADELPHIA	BOSTON
STEELMAKING SCRAP COMPOSITE	No. 1 heavy melting 36.00-37.00	No. 1 heavy melting 38.00	(Brokers' buying prices; f.o.b.
	No. 2 heavy melting 25.00-26.00	No. 2 heavy melting 32.00 No. 1 bundles 38.00	shipping point)
June 17\$36.50	No. 1 factory hundles. 41.00-42.00 No. 1 bundles 36.00-37.00	No. 2 bundles 24.00	No. 1 heavy melting 26.00 No. 2 heavy melting 20.00-20.50
June 10 35.50 May Avg 33.58	No. 2 bundles 25.00-26.00 No. 1 busheling 36.00-37.00	No. 1 busheling 38.00 Electric furnace bundles 39.00	No. 1 bundles 26.00 No. 1 busheling 26.00
June 1958 35.50	Machine shop turnings. 14.00-15.00	Mixed borings, turnings 20.00† Short shovel turnings 24.00-25.00	Machine shop turnings. 8.00-9.00
June 1954 27.92	Short shovel turnings. 20.00-21.00 Mixed borings, turnings 20.00-21.00	Machine shop turnings 20.00	No. 1 cast 33.00
Based on No. 1 heavy melting	Cast iron borings 20.00-21.00 Cut foundry steel 39.00-40.00	Heavy turnings 33.00-34.00 Structurals & plate 40.00-42.00	Mixed cupola cast 33.00 No. 1 machinery cast 34.00
grade at Pittsburgh, Chicago, and eastern Pennsylvania.	Cut structurals, plates	Couplers, springs, wheels Rail crops, 2 ft & under 58.00-60.00	No. 1 madmery case.
and eastern I emisylvama.	2 ft and under 45.00-46.00 Low phos. punchings &	Cast Iron Grades	DETROIT
PITTSBURGH	plate	No. 1 cupola 41.00	(Brokers' buying prices; f.o.b. shipping point)
	turnings	Heavy breakable cast . 42.00 Drop broken machinery 49.00-50.00	No. 1 heavy melting 31.00-32.00
No. 1 heavy melting 36.00-37.00 No. 2 heavy melting 31.00-32.00		Malleable 67.00-68.00	No. 2 heavy melting 20.00-21.00 No. 1 bundles 33.00-34.00
No. 1 dealer bundles 40.00-41.00 No. 2 bundles 25.00-26.00	Cast Iron Grades No. 1 cupola 47.00-48.00	NEW YORK	No. 2 bundles 19.00-20.00
No. 1 busheling 40.00-41.00 No. 1 factory bundles 46.00-47.00	Charging box cast 38.00-39.00	(Brokers' buying prices) No. 1 heavy melting 28.00-29.00	No. 1 busheling 31.00-32.00 Machine shop turnings. 12.00-13.00
Machine shop turnings. 20.00-21.00	Heavy breakable cast. 38.00-39.00 Stove plate 44.00-45.00	No. 2 heavy melting 25.00-26.00	Mixed borings, turnings 13.00-14.00 Short shovel turnings. 13.00-14.00
Mixed borings, turnings. 20.00-21.00 Short showel turnings 26.00-27.00	Unstripped motor blocks 33.00-34.00 Brake shoes 36.00-37.00	No. 1 bundles 28.00-29.00 No. 2 bundles 16.00-17.00	Cast Iron Grades
Cast iron borings 26.00-27.00 Cut structurals:	Clean auto cast 50.00-51.00	Machine shop turnings. 9.00-10.00† Mixed borings, turnings 12.00-13.00	No. 1 cupola 46.00-47.00
2 ft and under 43.00-44.00	Burnt cast	Short shovel turnings 13.00-14.00 Low phos. (structurals	Stove plate
3 ft lengths 42.00-43.00 Heavy turnings 30.00-31.00	Railroad Scrap	& plates) 36.00-37.00	Heavy breakable 36.00-37.00 Unstripped motor blocks 24.00-25.00
Punchings & plate scrap 45.00-46.00 Electric furnace bundles 42.00-43.00	R.R. malleable 65.00-66.00	Cast Iron Grades No. 1 cupola 36.00-37.00	Clean auto cast 50.00-51.00
Cast Iron Grades	Rails, 2 ft and under. 57.00-58.00 Rails, 18 in. and under 58.00-59.00	Unstripped motor blocks 24.00-25.00	SEATTLE
No. 1 cupola 45.00-46.00 Stove plate 45.00-46.00	Rails, random lengths 52.00-53.00 Cast steel 46.00-47.00	Heavy breakable 34.00-35.00 Stainless Steel	No. 1 heavy melting 35.00
Unstripped motor blocks 32.00-33.00	Railroad specialties 48.00-49.00 Uncut tires 42.00-43.00	18-8 sheets, clips,	No. 2 heavy melting
Clean auto cast 46.00-47.00 Drop broken machinery 51.00-52.00	Angles, splice bars 51.00-52.00	solids195.00-200.00 18-8 borings, turnings . 85.00-90.00	No. 2 bundles 22.00
Railroad Scrap	Rails, rerolling 58.00-59.00	410 sheets, clips, solids 55.00-60.00	Mixed borings, turnings 17.00
No. 1 R.R. heavy melt. 44.00-45.00	Stainless Steel (Brokers' buying prices; f.o.b.	430 sheets, clips, solids 85.00-90.00	Electric furnace No. 1. 38.00†
Rails, 2 ft and under 57.00-58.00 Rails, 18 in. and under 57.00-58.00	shipping point)	BUFFALO	Cast Iron Grades No. 1 cupola 34.00
Random rails 51.00-52.00 Angles, splice bars 50.00-51.00	18-8 bundles, solids215.00-220.00 18-8 turnings110.00-115.00	No. 1 heavy melting 33.00-34.00 No. 2 heavy melting 28.00-29.00	Heavy breakable cast 28.00†
Railroad specialties 50.00-51.00	430 clips, bundles,	No. 1 bundles 33.00-34.00 No. 2 bundles 23.00-24.00	Stove plate (f.o.b.
Rails, rerolling 61.00-62.00 Stainless Steel Scrap	solids	No. 1 busheling 33.00-34.00	plant) 21.00†
18-8 bundles & solids220.00-225.00	ST. LOUIS	Short shovel turnings 21.00-22.00 Machine shop turnings . 17.00-18.00	LOS ANGELES
18-8 turnings115.00-120.00 430 bundles & solids120.00-125.00	(Brokers' buying prices)	Cast iron borings 19.00-20.00 Low phos structurals and	No. 1 heavy melting 38.00 No. 2 heavy melting 36.00
430 turnings 55.00-65.00	No. 1 heavy melting 33.00	plate, 2 ft and under 43.00-44.00	No. 1 bundles 35.00
CHICAGO	No. 2 heavy melting	Cast Iron Grades (F.o.b. shipping point)	No. 2 bundles 18.00 Machine shop turnings 17.00
No. 1 hvy melt., indus. 35.00-36.00	No. 2 bundles 21.00 No. 1 busheling 37.00	No. 1 cupola 42.00-43.00	Shoveling turnings 19.00
No. 1 hvy melt., dealer 34.00-35.00 No. 2 heavy melting 31.00-32.00	Machine shop turnings 14.00	No. 1 machinery 46.00-47.00 Railroad Scrap	Cut structurals and plate
No. 1 factory bundles 41.00-42.00 No. 1 dealer bundles 35.00-36.00	Short shovel turnings 16.00	Rails, random lengths . 45.00-46.00	1 ft and under 49.00 Cast Iron Grades
No. 2 bundles 24.00-25.00	Cast Iron Grades	Rails, 3 ft and under 51.00-52.00 Railroad specialties 43.00-44.00	(F.o.b. shipping point)
No. 1 busheling, indus. 35.00-36.00 No. 1 busheling, dealer 34.00-35.00	Charging box cast 42.00	20.00-11.00	No. 1 cupola 47.00 Railroad Scrap
Machine shop turnings, 17.00-18.00 Mixed borings, turnings 19.00-20.00		CINCINNATI	No. 1 R.R. heavy melt. 41.00
Short shovel turnings 19.00-20.00 Cast iron borings 19.00-20.00	Clean auto cast 51.00	(Brokers' buying prices; f.o.b. shipping point)	SAN FRANCISCO
Cut structurals, 3 ft 43.00-44.00		No. 1 heavy melting 33.50-34.50	No. 1 heavy melting 36.00
Punchings & plate scrap 44.00-45.00	Railroad Scrap	No. 2 heavy melting 28.50-29.50 No. 1 bundles 33.50-34.50	No. 2 heavy melting 33.00 No. 1 bundles 33.00
Cast Iron Grades	No. 1 R.R. heavy melt 38.00 Rails, 18 in. and under 49.00	No. 2 bundles 23.00-24.00 No. 1 busheling 33.50-34.50	No. 2 bundles 22.00
No. 1 cupola 50.00-51.00 Stove plate 47.00-48.00	Rails, random lengths 42.50 Rails, rerolling 54.50	Machine shop turnings, 17.00-18.00 Mixed borings, turnings 17.00-18.00	Machine shop turnings. 16.00 Mixed borings, turnings 16.00
Unstripped motor blocks 42.00-43.00 Clean auto cast 57.00-58.00	Angles splice hars 45.00	Short shovel turnings 19.00-20.00	Cast iron borings 16.00 Heavy turnings 16.00
Drop broken machinery 57.00-58.00	BIRMINGHAM	Cast iron borings 18.00-19.00 Low phos., 18 in 43.00-44.00	Short shovel turnings 16.00
Railroad Scrap	No. 1 heavy melting 32.50-33.50	Cast Iron Grades	Cut structurals, 3 ft 42.00
No. 1 R.R. heavy melt. 39.00-40.00 R.R. malleable 59.00-60.00	No. 2 heavy melting 25.00-26.00	No. 1 cupola 45.00-46.00 Heavy breakable cast 41.00-42.00	Cast Iron Grades No. 1 cupola 44.00
Rails, 2 ft and under 55.00-56.00	No. 1 bundles 36.00-37.00 No. 2 bundles 22.00-23.00	Charging box cast 39.00-40.00	Charging box cast 34.00
Rails, 18 in. and under 56.00-57.00 Angles, splice bars 48.00-49.00	No. 1 busheling 36.00-37.00 Cast iron borings 14.00-15.00	Drop broken machinery . 51.00-52.00 Railroad Scrap	Stove plate 34.00 Heavy breakable cast 28.00
Axles	Machine shop turnings. 22.00-23.00	No. 1 R.R. heavy melt. 38.00-39.00	Unstripped motor blocks 31.00 Clean auto cast 40.00
teans, retoining 38.00-37.00	Short shovel turnings 26.00-27.00 Bar crops and plates 42.00-43.00	Rails, 18 in. and under 55.00-56.00 Rails, random lengths. 47.00-48.00	Drop broken machinery 40.00

2 heavy melting 1 bundles		Heavy breakable cast	41.00-42.00
2 bundles	22.00-23.00	Charging box cast Drop broken machinery.	
t iron borings	14.00-15.00	Railroad Scrap	
chine shop turnings.	22,00-23.00	No 1 R R heavy malt	29 00 20 00

Short shovel turnings.
Bar crops and plates.
Structurals & plates.. 26.00-27.00 Rails, 18 in. and under 55.00-56.00 42.00-43.00 41.00-42.00 Rails, random lengths.. 47.00-48.00

Electric furnace bundles 1 3 ft and under ... 34.00-35.00 2 ft and under ... 35.00-36.00 HOUSTON (Brokers' buying prices; f.o.b. cars) No. 1 heavy melting .. 34.00

		No. 2 neavy merting	31.00
Cast Iron Grad	es	No. 1 bundles	34.00
NT 1 -	ED 00 E4 00	No. 2 bundles	21.00
No. 1 cupola		Machine shop turnings.	17.00
Stove plate		Short shovel turnings	20.00
	29.00-30.00	Low phos. plates &	
Unstripped motor blocks		structurals	41.00
NTo 1 sychoola			

25.00-26.00 17.00-18.00 Cast Iron Grades 22.00-23.00 22.00-23.00 42.00-43.00 Railroad Scrap

No. 1 machinery cast.. 46.50-48.00 †Nominal. ‡F.o.b. Hamilton, Ont. Railroad Scrap No. 1 R.R. heavy melt.

VOUNGSTOWN

YOUNGSTOWN

No. 1 heavy melting...

No. 2 heavy melting...

No. 1 busheling

No. 1 bundles

No. 2 bundles

Machine shop turnings.

Short shovel turnings.

Cast iron borings

Low phos.....

Stainless Steel Scrap

39.00-40.00 28.00-29.00 39.00-40.00

39.00-40.00

40.00 40.00 34.00

32.25 28.25 32.25 22.75 24.25

13.00

32.25 26.25 17.00

Clean auto cast Drop broken machinery No. 1 wheels

(Brokers' buying pi
No. 1 heavy melting...
No. 2 heavy melting...
No. 1 bundles
No. 2 bundles
Mixed borings, turnings
Busheling, new factory:
Prepared
Unprepared
Short steel turnings...

Cast Iron Gradest

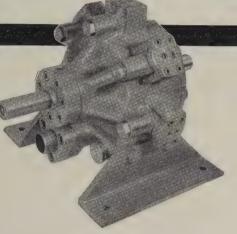
(Brokers' buying prices)

HAMILTON, ONT.

LOGEMANN HIGH PRESSURE PUMPS

DA PUMPS ... Opposed cylinder,
Reciprocating - plunger, double
pressure type.

Logemann DA Pumps are close-coupled to occupy minimum floor space. They have six plungers, operating three each in two cylinder blocks. In double pressure applications both cylinders deliver large fluid volume to a common discharge line, up to a predetermined low pressure. The low pressure cylinder is then automatically cut out by an adjustable unloading valve and high pressure cylinder continues to deliver fluid until maximum pressure is reached. Pumps are equipped with anti-friction bearings and automatically lubricated by combination splash and pressure system fed by a lubricating pump. Are totally enclosed, with cover provided for inspection and maintenance. Drive is through multiple V-belts for quietness. Available in various sizes.



RA PUMPS

84 GPM for pressures up to 1500 psi42 GPM for pressures up to 3000 psi

These are radial rotary plunger type pumps with hydraulically operated suction and discharge valves. Both are totally enclosed and extremely compact for limited space conditions. Seven plungers. Cylinder, plungers and valves are Nitralloy. Crankshaft rotates on tapered roller bearings and is counterweighted to minimize vibration. Drive from motor is through flexible coupling.

14-AX High Pressure Test PUMP

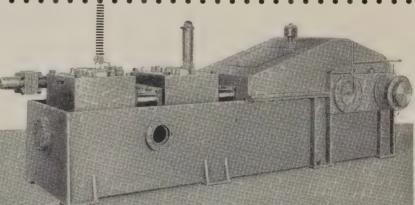
This is a vertical triplex type for pressures as high as 50,000 psi.—and is extensively used on pressure and burst tests. Short plunger

stroke and low crankshaft speed reduces fluid delivery for easy observation of gauges and control during pressure tests. Designed for use with water, has non-corrosive cylinder block, and the plungers, valves and valve seats are Nitralloy. This type is also obtainable for lower pressures and for other applications such as press operation.

145-A PUMP

Horizontal triplex tandem type

Designed to deliver high gallonage (371 GPM) at pressures up to 1000 psi and reduced gallonage (128 GPM) between 1000 and 3000 psi. Changeover from low to high pressure is made by an automatic unloading valve. Crankshaft, connecting rods and drive are enclosed in an oil-tight, dust-proof cover. Gears are continuously sprayed with oil under pressure; connecting rod bearings are pressure lubricated; and crosshead slides operate in an oil bath. The lubricating oil is pump circulated, and all cylinders are machined from solid steel blocks. This tandem type is also obtainable in smaller sizes.



LOGEMANN BROTHERS CO.

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Lead, Zinc Aided by Quotas

They may not be the final answer to the lead and zinc problem, but they've worked out better than most people predicted. Copper market eases. Aluminum output up

Nonferrous Metal Prices, Pages 146 & 147

WHEN quotas limiting the amount of foreign origin lead and zinc that can be imported into the U. S. went into effect last October, metalmen were skeptical. Many had favored tariffs, and they were bitterly disappointed with the administration's substitute program because they felt it wouldn't be strong enough to do domestic producers any good.

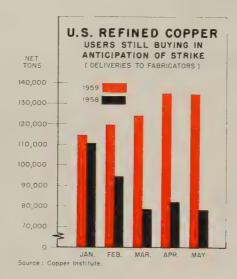
• Effects — After nearly eight months of operation, the program's effectiveness can be summed up in two words: It's working! One indication is producers' stocks. At the end of April, lead stocks were down to 247,765 tons, lower than they were in December. In May, zinc stocks fell to 196,004 tons. Except for the large tonnage held in stocks, supply and demand in the U. S. are pretty much in balance.

The program has cut imports sharply. For example, during the first four months of this year, 60,-440 less tons of lead entered the U. S. than in the same period of 1958. Less metal on the market and a business upswing have firmed prices. In fact, if it weren't for the threat of a steel strike, the price of zinc would be higher.

- More Improvement It's not unanimous, but many metalmen think the full effect of quotas hasn't been felt yet. They believe as the year progresses that producers, not hampered by a flood of imports, will be able to chip away at their bulky stocks.
- Tariff Not Buried—This doesn't mean the industry is entirely satisfied with quotas. Most domestic producers candidly admit they think tariffs would be a better solution. Their reasoning: 1. Even with quotas, too much lead and zinc are entering the U. S. 2. Since foreign producers can still go under domestic quotations, many high cost mines

find it difficult to sell their metal at the going rate and make a profit.

The viewpoint is shared by most mine state legislators. A host of bills have been presented in the last year to place duties on lead and zinc



imports. The latest try is by Sen. James E. Murray (D., Mont.). His plan: A 4-cent-a-pound duty to be placed on imports whenever the domestic price of lead falls below 15.5 cents a pound and the price of zinc goes below 13.5 cents.

• Sales Ease—The growing strike tension has made buyers fidgety. June sales should hold close to the high May figures but will probably drop a little in July. One exception is special high grade zinc which is booming. It's in generally tight supply, and many buyers haven't been able to get all they want.

Copper Market Eases

Buyers have evidently decided they don't want to add any more copper to inventory now and are willing to coast for a while. As a result, the tightness in the copper market has about disappeared.

• Custom Price Down — Custom smelters reacted to a decline in demand and falling quotations on the London Metal Exchange and Commodity Exchange by dropping their price 0.5 cent to 31.5 cents a pound on June 15. As STEEL went to press, metalmen said the odds were about 50-50 it would drop a little more.

Some world-wide weakness is caused by excess production in relation to demand. Evidently more foreign metal has been entering the U. S. recently. Some dealers in New York last week were quoting 31 cents a pound for foreign copper.

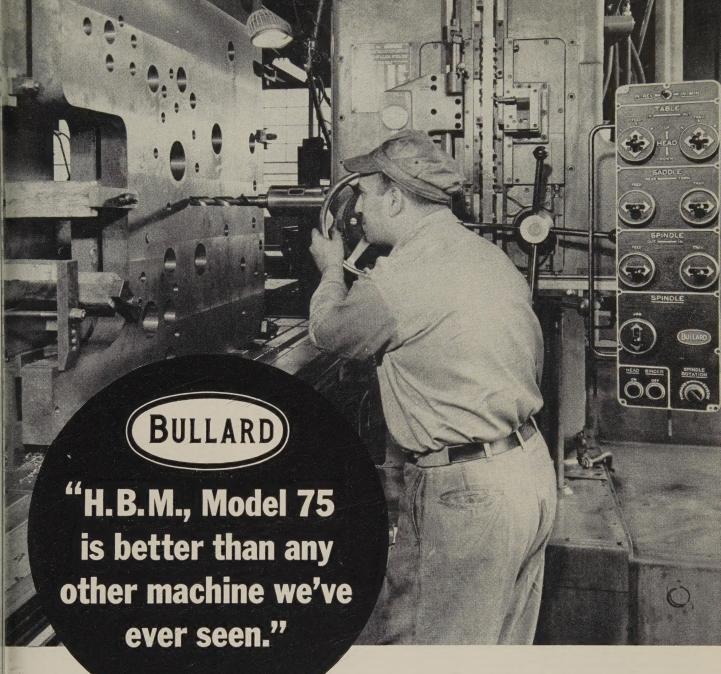
Aluminum Output Up

U. S. primary output continues to spiral. With the startup of 42,-000 tons of idle capacity at Jones Mill, Ark., and Listerhill, Ala., Reynolds Metals Co. is operating at full capacity (601,000 tons yearly). Anaconda Aluminum Co. has stepped up its operations to 88 per cent of capacity. On the basis of these announcements, STEEL estimates the domestic industry is now operating at an annual rate of 2,057,500 tons.

NONFERROUS PRICE RECORD

	June 17 Price	C	Las hang		Previous Price	May Avg	Apr. Avg	June, 1958 Avg
Aluminum .	24.70	Aug.	1,	1958	24.00	24.700	24.700	24.000
Copper	31.50	June	15,	1959	31.50-32.00	31.750	32.404	25.400
Lead	11.80	May	7,	1959	11.30	11,700	10 992	11.040
Magnesium .	35.25	Aug.	13,	1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec.	6,	1956	64.50	74.000	74.000	74.000
Tin	104.75	June	17,	1959	104.625	103.080	102.490	94.701
Zinc	11.00	Feb.	25,	1959	11.50	11.000	11.000	10.000

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig 99.8%, Velasco, Tex.



This statement by Mr. John Gruber, Plant Foreman of George Hantscho and Company, Inc.,

Mount Vernon, New York, manufacturers of printing equipment, sums up their experience since installing the Bullard 4" H.B.M., Model 75, in June 1957.

He further states "our presses and paperfolding machines are made to order and each job varies from the one before it. Because of this, we can't use assembly line or mass production techniques."

"The only mass production we have is the machining of holes in cast iron, up to as many as 105 in a side frame. Since we've been using our Bullard H.B.M., Model 75, with BULLARD AUTOMATIC POSITIONING we have not spoiled a single piece due to the malfunctioning of the machine."

Do you know the full story on the Bullard H.B.M., Model 75? If not, it will pay you to call your nearest Bullard Sales Engineer — he'll be glad to give you all the details or write

Nonferrous Metals

Cents per pound, carlots except as otherwise

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.70; ingots, 26.80, 30,000 lb or more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 28.60; No. 43, 28.40; No. 195, 29.40; No. 214, 30.20; No. 356, 28.60; 30 or 40 lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50, f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 24.50-25.00, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, \$71.50 per lb, Cheryllium or Reading, Pa.

f.o.b. Cleveland or Reading, Pa

Beryllium Aluminum: 5% Be, \$74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.75% Be, \$43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: \$2.25 per lb, ton lots.

Cadmium: Sticks and bars, \$1.30 per lb deld. Cobalt: 97.99%, \$1.75 per lb for 500-lb keg, \$1.77 per lb for 100 lb case; \$1.82 per lb under 100 lb.

Columbium: Powder, \$55-85 per lb, nom.

Copper: Electrolytic, 31.50 deld.; custom smelters, 31.50; lake, 31.50 deld.; fire refined, 31.25 deld.

Germanium; First reduction, less than 1 41.00 per gram; 1-10 kg, 37.00 per grintrinsic grade, 33.30-35.30 per gram. per gram;

Gold: U. S. Treasury, \$35 per oz.

Indium: 99.9%, \$2.25 per troy oz.

Iridium: \$75-80 nom. per troy oz.

Lead: Common, 11.80; chemical, 11.90; corroding, 11.90, St. Louis, New York basis, add 0.20.

Lithium: 1 lb or 2 lb ingots, less than 50 lb, \$11 per lb, f.o.b. Minneapolis; 50-99 lb, \$10; 100-499 lb, \$9.50; 500 lb or more, \$9 per lb, delivered.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. sticks, 59.00 f.o.b. Velasco, Tex Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld.; AZ63A, AZ92A, AZ91C (sand casting) 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, \$241-243 per 76 lb flask.

Molybdenum: Unalloyed, turned extrusi 3.75-5.75 in. round, \$9.60 per lb in lots 2500 lb or more, f.o.b. Detroit. extrusion

2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XX" nickel shot, 79.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty. New York basis, add 1.01. Nickel oxide sinter at Buffalo, New York, or other established U. S. points of entry, contained nickel, 69.60.

Osmium: \$70-100 per troy oz nom. Palladium: \$18-20 per troy oz.

Platinum: \$77-80 per troy oz from refineries.

Radium: \$16-21.50 per mg radium content, depending on quantity.

Rhodium: \$122-125 per troy oz.

Ruthenium: \$55-60 per troy oz.

Selenium: \$7.00 per lb, commercial grade.

Silver: Open market, 91.375 per troy oz.

Sodium: Solid pack, c.l., 19.50; l.c.l., 20.00; brick, c.l., 21.00; l.c.l., 21.50; tank car, 17.00.

Tantalum: Melting stock, \$35 per lb; rod, \$60 per lb nom.; sheet, \$55 per lb nom.

Tellurium: \$2.00-2.20 per lb.

Thallium: \$7.50 per lb.

Tin: Straits, N. Y., spot and prompt, 104.75. **Titanium:** Sponge, 99.3 + % grade A-1, ductile (0.3% Fe max.), \$1.62-1.82; grade A-2 (0.5% Fe max.), \$1.70 per lb.

Tungsten: Powder, 98.8%, carbon reduced, 1000-lb lots, \$2.75-2.90 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99 + % hydrogen reduced, \$3.30-3.80.

Zinc: Prime western, 11.00; brass special, 11.25; intermediate, 11.50, East St. Louis, freight allowed over 0.50 per lb, New York basis, add 0.50. High grade, 12.00; special high grade, 12.25 deld. Diecasting alloy ingot No. 3, 14.00; No. 2, 14.50; No. 5, 14.25 deld. Zirconium: Reactor grade sponge, 100 lb or less, \$7 per lb; 100-500 lb, \$6.50 per lb; over 500 lb, \$6 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND **ALLOYS**

Aluminum Ingot: Piston alloys, 24.875-26.25; No. 12 foundry alloy (No. 2 grade), 22.75-23.00; 5% silicon alloy, 0.60 Cu max., 24.75-25.00; 13 alloy, 0.60 Cu max., 24.75-25.00; 195 alloy, 26.25-27.00; 108 alloy, 23.25-23.50. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.75; grade 2, 22.50; grade 3, 21.25; grade 4, 20.75.

Brass Ingot: Red brass No. 115, 30.25; tin bronze, No. 225, 41.25; No. 245, 35.00; high-leaded tin bronze, No. 305, 34.50; No. 1 yellow, No. 405, 24.75; manganese bronze, No. 421,

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, \$1.91, f.o.b. Temple, Pa., or Reading, Pa.; rod. bar, wire, \$1.89, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 20,000-lb lots, 36.855; l.c.l., 37.48. Weatherproof, 20,000-lb lots, 37.42; l.c.l., 38.17.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, \$17.50 per cwt; pipe, full coils, \$17.50 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheet and strip, \$7.25-17.00; sheared mill plate, \$5.25-10.00; wire, \$5.75-10.00; forging billets, \$3.55-5.75; hot-rolled and forged bars, \$4.25-7.50.

(Prices per lb, c.l., f.o.b. mill.) Sheets, 26.00; ribbon zinc in coils, 21.50; plates, 20.00.

ZIRCONIUM

Plate, \$12.50-19.20; H.R. strip, \$12.50-22.90; C.R. strip, \$15.90-31.25; forged or H.R. bars, \$11.00-17.40.

NICKEL, MONEL, INCONEL

"A"	Nickel	Monel	Incone
Sheets, C.R	138	120	138
Strip, C.R	124	108	138
Plate, H.R	130	110	126
Rod, Shapes, H.R	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003 and 5005 mill finish (30,000 lb base; freight allowed).

Banas	Tilled	(1-11-3
Range	Flat	Coiled
Inches	Sheet	Sheet
0.250-0.136	42.80-47.30	
0.136-0.096	43.20-48.30	
0.126-0.103		39.20-39.80
0.096-0.077	43.80-50.00	39.30-40.00
0.077-0.068	44.30-52.20	
0.077-0.061		39.50-40.70
0.068-0.061	44.30-52.20	
0.061-0.048	44.90-54.40	40.10-41.80
0.048-0.038	45.40-57.10	40.60-43.20
0.038-0.030	45.70-62.00	41.00-45.70
0.030-0.024	46.20-53.70	41.30-45.70
0.024-0.019	46.90-56.80	42.40-44.10
0.019-0.017	47.70-54.10	43.00-44.70
0.017-0.015	48.60-55.00	43.80-45.50
0.015-0.014	49.60	44.80-46.50
0.014-0.012	50.80	45.50
0.012-0.011	51.00	46.70
0.011-0.0095	53.50	48.10
0.0095-0.0085	54.60	49.60
0.0085-0.0075	56.20	50.80
0.0075-0.007	57.70	52.30
0.007-0.006	59.30	53.70
0.00. 0.000	00.00	00.10

ALUMINUM (continued)

Plates and Circles: Thickness	0.250-3 in
24-60 in, width or diam., 72-240	in. lengths
Alloy Plate Base	Circle Base
1100-F, 3003-F 42.40	47.20
5050-F 43.50	48.30
3004-F 44.50	50.20
5052-F 45.10	50.90
6061-T6 45.60	51.70
2024-T4 49.30	56.10
7075-T6* 57.60	64.70

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine				31
Diam. (in.) or			-Hexag	
across flats*	2011-T3	2017-T4	2011-T3	2017-T4
0.125	76.90	73.90		0 010 0
0.250	62.00	60.20	89.10	76.60
0.375	61.20	60.00	73.50	68.50
0.500	61.20	60.00	73.50	68.50
0.625	61.20	60.00	69.80	64.20
0.750	59.70	58.40	63.60	60.400
0.875	59.70	58.40	63.60	60.40
1.000	59.70	58.40	63.60	60.40
1.125	57.30	56.10	61.50	58.30
1.250	57.30	56.10	61.50	58.30
1.350	57.30	56.10	61.50	58.30
1.500	57.30	56.10	61.50	58.30
1.625	55.00	53.60		56.20
1.750	55.00	53.60	60.30	56.20
1.875	55.00	53.60		56.20
2.000	55.00	53.60	60.30	56.20
2.125	53.50	52.10		
2.250	53.50	52.10		56.20
2.375	53.50	52.10		
2.500	53.50	52.10		56.20
2.625		50.40		
2.750	51.90	50.40		56.20
2.875		50.40		
3.000	51.90	50.40		56.20
3.125		50.40		
3.250		50.40		
3.375		50.40		
*Selected cizes				

Selected siz

Forging Stock: Round, Class 1, random lengths, dlam., 0.375-8 in., "F" temper; 2014, 42.20-55.00; 6061, 41.60-55.00; 7075, 61.60-75.00; 7070, 66.60-80.00.

Pipe: ASA schedule 40, alloy 6063-T6 standard length, plain ends, 90,000 lb base, dollars per 100 ft. Nominal pipe sizes: % in., 18.85; 1 in., 29.75; 1½ in., 40.30; 1½ in., 48.15; 2 in., 58.30; 4 in., 160.20; 6 in., 287.55; 8 in. in., 58

Extruded Solid Shapes:

	Alloy	Alloy		
Factor	6063-T5	6062-T6		
9-11	42.70-44.20	51.30-55.50		
12-14	42.70-44.20	52.00-56.50		
15-17	42.70-44.20	53.20-58.20		
18-20	43.20-44.70	55.20-60.80		

MAGNESIUM

MAGNESIUM

Sheet and Plate: A231B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. A231B spec. grades, .032 in., 171.30; .081 in., 108.80; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.10; .25-.75 in., 70.60-71.60. Tooling plate, 0.25-3.0 in., 73.00.

Extruded :	sona snapes:	
	Com. Grade	Spec. Grade
Factor	(AZ31C)	(AZ31B)
6-8	65.30-67.60	84.60-87.40
12-14	65.30-67.60	85.70-88.00
24-26	66.10-75.30	90.60-91.30
36-38	66.10-75.30	104.20-105.30

NONFERROUS SCRAP

DEALERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 24.00-24.50; No. 2 heavy copper and wire, 22.00-22.50; light copper, 20.00-20.50; No. 1 composition red brass, 18.00-18.50; No. 1 com-

RKY22	MILL	PRICES	5

		MILL P	RODUCTS a		SCRAP A	LLOWANCES e
	Sheets,				(Based on	copper at 31.50c)
	Strip,			Seamless	Clean	Rod Clean
	Plate	Rod	Wire	Tubes	Heavy	Ends Turnings
Copper	55.63b	52.86c		55.82	27.500	27.500 26.750
Yellow Brass	48.24	32.73d	48.78	51.65	20.625	19.750 18.750
Low Brass, 80%	51.23	51.17	51.77	54.54	23.250	23.000 22.500
Red Brass, 85%	52.29	52.23	52.83	55.60	24.250	24.000 23.500
Com. Bronze, 90%	53.90	53.84	54.44	56.96	25.125	24.875 24.375
Manganese Bronze	56.54	50.14	60.62		19.125	18.875 18.375
Muntz Metal	50.85	46.16			19.375	19.125 18.625
Naval Brass	52.80	46.61	59.36	56.21	19.125	18.875 18.375
Silicon Bronze	60.67	59.86	60.21	78.35	27.000	26.750 26.000
Nickel Silver, 10%	63.82	66.15	66.15		25.500	25.250 12.625
Phos. Bronze	75.34	75.84	75.84	77.02	28.625	28.375 25.750
a. Cents per lb, f.o.b.	mill: freight	allowed	on 500 lb or	more. b.	Hot-rolled.	c. Cold-drawn.

d. Free cutting, e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, of any or all kinds of scrap, add 1 cent per lb.

position turnings, 16.50-17.00; new brass clippings, 16.50-17.00; light brass, 11.50-12.00; heavy yellow brass, 12.50-13.00; new brass rod ends, 13.00-13.50; auto radiators, unsweated, 14.00-14.50; cocks and faucets, 14.00-14.50; brass pipe, 14.00-14.50.

Lead: Soft scrap lead, 7.75-8.25; battery plates, 2.75-3.00; linotype and stereotype, 9.25-9.75; electrotype, 7.75-8.25; mixed babbitt, 0.75-10.28 9.75-10.25.

Monel: Clippings, 30.00-32.00; old sheets, 26.00-28.00; turnings, 20.00-22.00; rods, 30.00-

Nickel: Sheets and clips, 52.00-54.00; rolled anodes, 52.00-54.00; turnings, 39.00-40.00; rod ends, 52.00-54.00.

Zine: Old zine, 3.25-3.50; new diecast scrap, 3.00-3.25; old diecast scrap, 1.75-2.00.

Aluminum: Old castings and sheets, 11.50-11.75; clean borings and turnings, 7.25-7.75; segregated low copper clips, 14.75-15.25; segregated high copper clips, 14.25-14.75; mixed opper clips, 15.00-15.50; mixed high copper copper clips, 15. clips, 12.25-12.75.

(Cents per pound,, Chicago)

Aluminum: Old castings and sheets, 12.25-12.75; clean borings and turnings, 10.00-10.50; segregated low copper clips, 17.25-17.75; segregated high copper clips, 16.25-16.75; mixed low copper clips, 16.50-17.00; mixed high copper clips, 15.75-16.25.

(Cents per pound, Cleveland)

Aluminum: Old castings and sheets, 11.50-11.75; clean borings and turnings, 10.50-11.00; segregated low copper clips, 15.75-16.25; segregated high copper clips, 14.75-15.25; mixed low copper clips, 15.25-15.75; mixed high coplow copper clips, 15.2 per clips, 14.25-14.75.

REFINERS' RUVING PRICES

(Cents per pound, carlots, delivered refinery)
Beryllium Copper: Heavy scrap, 0.020-in. and
heavier, not less than 1.5% Be, 57.50; light
scrap, 52.50; turnings and borings, 37.50.
Copper and Brass: No. 1 heavy copper and
wire, 26.25; No. 2 heavy copper and wire,
25.00; light copper, 22.75; refinery brass
(60% copper) per dry copper content 25.25.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 26.25; No. 2 heavy copper and wire, 25.00; light copper, 22.75; No. 1 composition borings, 20.50; No. 1 composition solids, 21.00; heavy yellow brass solids, 15.00; yellow brass turnings, 14.00; radiators, 16.50.

PLATING MATERIAL

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, \$1.30. Copper; Flat-rolled, 47.79; oval, 46.00, 5000-10.000 lb; electrodeposited, 40.50, 2000-5000 lb lots; cast, 43.00, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; wire, 27.00; No. 2 heavy copper and wire, 26.00; light copper, 23.75; refinery brass deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 123.50; 200-499 lb, 122.00; 500-999 lb, 121.50; 1000 lb or more, 121.00.

Zinc: Balls, 18.00; flat to 20.75; ovals, 20.00, ton lots. tops, 18.00; flats,

CHEMICALS

Cadmium Oxide: \$1.30 per lb in 100-lb drums. Chromic Acid (flake): 100-2000 lb, 31.00; 2000-10.000 lb, 30.50; 10.600-20,000 lb, 30.00; 20,-000 lb or more, 29.50.

Copper Cyanide: 100-200 lb, 65.90; 300-900 lb, 63.00; 1000-19,900 lb, 61.90.

Copper Sulphate: 100-1900 lb, 15.30; 2000-5900 lb, 13.30; 6000-11,900 lb, 13.05; 12,000-22,900 lb, 12.80; 23 000 lb or more, 12.30.

Nickel Chloride: 100 lb, 45.00; 200 lb, 43.00; 300 lb, 42.00; 400-4900 lb, 40.00; 5000-9900 lb, 38.00; 10.000 lb or more, 37.00.

Nickel Sulphate: 5000-22,999 lb, 29.00; 23,000-39.990 lb, 28.50; 40,000 lb or more, 28.00. Sodium Cyanide (Cyanobrik): 200 lb, 20.80; 400-800 lb, 19.80; 1000-19,800 lb, 18.80; 20,000 lb or more, 17.80.

Sodium Stannate: Less than 100 lb, 81.20; 100-600 lb, 71.70; 700-1900 lb, 69.00; 2000-9900 lb, 67.10; 10.000 lb or more, 65.80.

Stannous Chloride (Anhydrous): 25 lb, 156.80; 100 lb, 152.00; 400 lb, 149.50; 800-19.900 lb, 108.70; 20.000 lb or more, 102.60.

Stannous Sulphate: Less than 50 lb, 141.90; 50 lb, 111.90; 100-1900 lb, 109.90; 2000 lb or more, 107.90.

This Gyanide: 100.200 lb, 59.00; 300.000 lb

Zine Cyanide: 100-200 lb, 59.00; 300-900 lb,

(Concluded from Page 141)

Despite the steady scrap consumption during April, steel mill stocks showed another increase, rising to 6,977,000 tons. Foundry stocks moved up to 1,300,000 tons.

Pig Iron . . .

Pig Iron Prices, Page 136

Although foundry operations will be off sharply next month due to mass vacations and hot weather. purchases of merchant iron this month are the most active so far this year. Demand for castings is heavier, and many foundries have been accumulating a little extra stock because of the possibility of a steel strike.

Most consumers appear to be adequately stocked for their requirements over the next several weeks, even if a strike curtails output.

Records for pig iron production were set in May by Republic Steel Corp.'s two blast furnaces at Birmingham and two at Gadsden, Ala.

Rails, Cars . . .

Track Material Prices, Page 134

Greenville Steel Car Co. will about double the work force at its Greenville (Pa.) Works as a result of a leasing agreement with the Pennsylvania Railroad on 1000 seventy-ton hoppercars. The plant employs 325.

The Pennsylvania lease runs 20 years, with the railroad having option rights to renew it for another The cars will be ready for service by December, 1959.

The Pennsylvania Railroad has ordered 4000 seventy-ton hopper cars, to be built at the Johnstown, Pa., shops of Bethlehem Steel Co. at a cost of \$40 million. The road has a leasing arrangement with an investing group. This deal completes its program for acquiring 23,-500 freight cars through lease and purchase agreements.

The Southern Railway has placed an order for 48 freight diesel locomotives, 2400 hp each, with the Electro-Motive Div., General Motors Corp., La Grange, Ill. They will cost \$12.7 million.

Structural Shapes . . .

Structural Shape Prices, Page 131

Although new awards are light, structural steel fabricating shops

FOR SALE

Large inventory of steel flat bar, plates and structurals, in A-1 condition, stored under cover, at mill prices.

Write or call E. Wilmoth **NEW YORK** SHIPBUILDING CORPORATION

> Camden, New Jersey Woodlawn 3-6700

STRUCTURAL STEEL SHOP

For Sale or Lease

In path of great industrial expansion, in California. 250-ton monthly fabricating capacity. Land, buildings, machinery, \$105,000.

Reply Box 772, STEEL Penton Bldg., Cleveland 13, Ohio

IF YOU OPERATE A FURNACE

We will purchase your scrap linings, retorts, conveyors, muffles, racks, etc. Any item made of Nickle alloy.

Write, Wire or Call

Weinstein Co.,

610 W. 8th St. Jamestown, N. Y. Phone 61-154

ASSISTANT BLAST FURNACE SUPERINTENDENT

In a new steel plant, completely integrated.

Located in one of the Great Lake States.

Salary Open.

Send detailed resume to Box 771, STEEL, Penton Bldg., Cleveland 13, Ohio

CLASSIFIED

MANUFACTURERS' REPRESENTATIVES WANTED

Well established manufacturers' representatives wanted with following. Production item used by steel producers, aluminum producers, aluminum and steel warehouses, stainless fabricators, polishers and all manufacturers using stainless steel isners and all manufacturers using stainless steel and aluminum. Product recognized as the outstanding leader in field. Highest quality and most competitive price has eliminated all sales resistance and competition. Excellent commission. All territories now open. In reply give lines handled, years in business, number of salesmen, types of accounts called on, warehouse facilities and branch operations. Write Box 773, STEEL, Penton Bldg., Cleveland 13, Ohio.

Help Wanted

DIE JOB SHOP WORKING FOREMAN experienced sheet metal work. Confidential.

The Payne Teol & Engineering Co. Springfield, Ohio



hold substantial backlogs due to heavy buying earlier this year Those not directly affected by steel strike (should there be one a midyear) will be busy right through the summer, at least to the extentheir steel supplies will permit.

Generally, fabricators' steel stock appear sufficient to carry them for four to five weeks on the average Should a prolonged steel strike be experienced they will be pinched sometime in August. Actually, fab ricators and rail equipment build ers are likely to be among the firs consumers to feel the pinch of stee scarcity if a strike runs more than a few weeks.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

1200 tons, state bridgework, Sec. 9, Farm-hurst, Del., through G. A. & F. C. Wagman, contractor, Dallastown, Pa., to an Arlington, fabricator

1200 tons, five bridges and ramp connections, Worcester, Mass., to West End Iron Works, Cambridge, Mass., through Balkett Co. Inc.,

Boston, general contractor. 500 tons or more, structural steel towers, U. S. Engineer, Seattle, delivered Baker, Oreg., Cottonwood, Idaho, and Tillamock, Oreg., to

Isaacson Iron Works, Seattle, at \$343,360. 500 tons or more, beams, naval shipyard, Philadelphia, to Caine Steel Co., Chicago, at \$202,188, and Bethlehem Steel Co., Bethlehem, Pa., at \$38,312. 360 tons, Idaho state highway bridge, Poca-

tello, to unstated interest; LaGrande-Johnson

Co. is general contractor.

300 tons, Coca Cola bottling plant, North
Brunswick, N. J., to Irvington Steel & Iron

Brunswick, N. J., to Manager Works, New Brunswick, N. J. 212 tons, Montana state road bridge, Milk 212 tons, Montana state road bridge Div., River, reported to American Bridge Div., U. S. Steel Corp., Pittsburgh; W. P. Roscoe Co., Helena, Mont., general contractor.

STRUCTURAL STEEL PENDING

Island & Pacific Railroad, Calumet Sag Channel project, Blue Island Ill.; bids in. 1200 tons, approachwork, George Washington Bridge, New York, involving 500 Sections 5 and 6, and 700 tons for Section 9: general contract awarded to Gull Contracting Co., Flushing, N. Y., on its bid of \$1,992,760.

1135 tons, steel sheet piling, U. S. Engineer, Chicago; delivered Kewaunee, Ill.

1000 tons, gymnasium and athletic building, St. John's University, Queens, N. Y.; Coresto Contracting Co., Brooklyn, N. Y., awarded general contract.

Montana state overpass, Helena; bids in

475 tons, Port Reading grade crossing, Central Railroad of New Jersey, Woodbridge, N. J.;

also 170 tons, reinforcing bars.

320 tons, high school, La Salle College, Montgomery County, Pa.; bids asked; 380 tons of reinforcing bars are also required.

212 tons, Montana state bridge, Milk River; general contract to W. P. Roscoe Co., Helena, Mont.

111 tons, state bridgework, Burlington, Conn., bids June 15.

REINFORCING BARS . . .

REINFORCING BARS PLACED

500 tons, state highway structures, Worcester, Mass., to Bethlehem Steel Co., Bethlehem, Pa., through Barletta Co. Inc., Boston, general contractor.

0 tons, group hospital, Seattle, to North-west Steel Rolling Mills Inc., Seattle; Lloyd Johnson and Morrison-Knudsen Co., Seattle, joint contractors.